RE: stream flow and WQ

Dan Cincotta to 'Dave Wellman', 'Frank Jernejcic' 08/28/2009 03:00 PM

Cc: "'John Wirts'", "'Campbell, Patrick V'", Louis Reynolds, "'Walt Kordek'"

History: This message has been forwarded.

Hey Wellman!
The conductivity in Dunkard Creek near Wadestown wasn 't 4,000 like "Michael Baker" biologists' said it was. It was 25,000 to 45,000, depending where you took the measurement in the stream (50,000 immediately below their discharge, 5,000 above)!!!! Consol said they thought they had a contract to treat the water of a Marsalis Shale gas company , but when he checked ---- it had already ended. So he said it was their problem . We ended up seining three sites upstream of their main facility (ca. 5,000 conductivity). Got about 20 species at each of these sites . There appeared to be many less species and numbers of individuals immediately below the discharge (we didn't have time to do a full site below the discharge , but could go back if anyone is interested). So what are you and Frank going to do about it !! Just kidding, but thought you and everyone else should know what we found----------Dan

-----Original Message-----
From: Dave Wellman [mailto:davidwellman@wvdnr.gov]
Sent: Monday, August 24, 2009 3:02 PM
To: David Thorne; Dan Cincotta
Subject: stream flow and WQ

http://www2.mvr.usace.army.mil/WaterControl/new/layout.cfm

Hey Guys,
The above link has the WQ data for Dunkard Creek .

later,

David I. Wellman
Fisheries Biologist - WVDNR
PO Box 99 1110 Railroad Street
Farmington, WV 26571
Phone: (304) 825-6787
Fax: (304) 825-6270

WV Fork Dunkard Creek

David Thorne to Louis Reynolds 08/31/2009 10:23 AM

Here's the location of the downstream site where the 51,000 conductivity reading was observed (20,000+ downstream discharge/~5,000 upstream). The volume of the point discharge was nearly equal to the receiving stream . Pretty wild!

David Thorne
Aquatic Community Assessment and Restoration Program
(ACARP)
WV Division of Natural Resources
Wildlife Resources Section
Elkins, WV

FW: WV Fork Dunkard Creek

David Thorne to Louis Reynolds 08/31/2009 11:26 AM

Cc: "Dan Cincotta"

My bad...forgot the attachment. Here's the info sans attachment. Sorry it's ugly, but you're smart...you'll figure it out. Actually copy and paste into Excel and it should line up; if not, then it's space delimited.
PS..just funny--the spell checker wants to change Dunkard to Drunkard...struck me as funny, a true Beavis and Butthead moment for a Monday morning. Now I feel better.

id	lat	long	date	time	model	stream	location	comment
061	39.71864982	-80.27685318	08/27/09	10:20:11 AM	Garmin GPSMap 76 Cx	West Virginia Fork Dunkard Creek	Blacksville	#2 mine at Wana "point was averaged for ~1 minute to ~12 feet accuracy, mid-channel bar just upstream of 51,000 conductivity discharge."

David Thorne
Aquatic Community Assessment and Restoration Program
(ACARP)
WV Division of Natural Resources
Wildlife Resources Section
Elkins, WV

-----Original Message-----
From: David Thorne [mailto:davidthorne@wvdnr.gov]
Sent: Monday, August 31, 2009 10:14 AM
To: Lou Reynolds
Subject: WV Fork Dunkard Creek

Here's the location of the downstream site where the 51,000 conductivity reading was observed (20,000+ downstream discharge/~5,000 upstream). The volume of the point discharge was nearly equal to the receiving stream. Pretty wild!

David Thorne
Aquatic Community Assessment and Restoration Program
(ACARP)
WV Division of Natural Resources
Wildlife Resources Section
Elkins, WV

FW: Dunkard Creek Fish Kill

Spear, Richard to: Urban, Chris, Welte, Nevin , Frank Borsuk, Louis Reynolds 09/09/2009 03:15 PM

FYI

Rick Spear | Water Pollution Biologist Supervisor
Department of Environmental Protection
Southwest Regional Office
Watershed Management Program
Assessment and Planning Section
400 Waterfront Drive| Pittsburgh, PA 15222
Phone: 412.442.5874 | Fax: 412.442.4328
www.depweb.state.pa.us

-----Original Message-----
From: Brethauer, Charles
Sent: Wednesday, September 09, 2009 2:56 PM
To: Harper, Samuel; Schwartz, Ronald; Graham, Rita; Owoc, Abbey; Spear, Richard; Jones, Jeffrey; Halloran, Kevin; Swarm, H. Scott; Cox, Stacy; Humphreys, Helen
Subject: FW: Dunkard Creek Fish Kill

Today's developments:

WV still does not know what killed the fish or mussels.

At PFBC request, EPA is now involved.

Last date fish were known (to WV DEP) to be killed was last Friday, Sept 4th.

The Morris Run borehole (this is for CNX's coal bed methane water) goes into Blacksville Mine, just east of town of Brave, PA. Some of this is pumped out at a mine on the WV Fork of Dunkard Creek near town of Wana, WV. So wastes that were disposed in this borehole could be pumped out into Dunkard Creek.

Stacy Cox, WQ inspector, will take field measurements & chem samples from Dunkard Creek tomorrow to complement what WV DEP has collected south of the border.

-----Original Message-----
From: Brethauer, Charles
Sent: Tuesday, September 08, 2009 9:49 AM
To: Harper, Samuel; Schwartz, Ronald; Graham, Rita; Owoc, Abbey; Spear, Richard; Jones, Jeffrey; Halloran, Kevin; Swarm, H. Scott
Subject: Dunkard Creek Fish Kill

Just received a call from Minter Foster with the WV DEP's Environmental Enforcement group for Waste & Wastewater, based in Fairmont. His supervisor is Brad Swiger. Phone for both is 304-368-3960.

They learned of & have been investigating a fish kill in the WV portion of Dunkard Creek since last Tuesday (Sept 1). It reportedly started Saturday, August 29. Cause unknown.

They have seen dead fish ~1 mile upstream of Pentress, WV, which is about 3 crow miles east of Brave & 7 miles west of Mount Morris. Mussels have been affected even further upstream. Dunkard Creek crosses the PA-WV border several times in this area.

They are looking at coal mine discharges in WV. There are 3 active mines (including Blacksville #2 on the WV Fork with discharge conductivity = 22,000 & Federal #2 with discharge conductivity = 6000) and 1 abandoned mine (Loveridge(?), conductivity = 17,000). Stream conductivity is ~2500 near Mount Morris, PA. pH is ~8, D.O. is 6.9 to 10.

He inquired about Accurate Brass Co. in Brave (Wayne Twp, Greene Cty). Our files show they have no NPDES permit. Sewage goes to Brave STP. Pickling wastes are hauled away. Per Sam, there is groundwater contamination from old wet gas plant, and they once had lagoons associated with the brass business. Between WQ & Waste Mgmt, somebody will inspect them.

WV biologists have reported this to PFBC.

Pentress map link:
http://westvirginia.hometownlocator.com/wv/monongalia/pentress.cfm

FW: Dunkard Creek Fish Kill

Spear, Richard to: Welte, Nevin, Urban, Chris, Frank Borsuk, Louis Reynolds — 09/09/2009 03:27 PM

FYI

Rick Spear | Water Pollution Biologist Supervisor
Department of Environmental Protection
Southwest Regional Office
Watershed Management Program
Assessment and Planning Section
400 Waterfront Drive | Pittsburgh, PA 15222
Phone: 412.442.5874 | Fax: 412.442.4328
www.depweb.state.pa.us

-----Original Message-----
From: Brethauer, Charles
Sent: Tuesday, September 08, 2009 9:49 AM
To: Harper, Samuel; Schwartz, Ronald; Graham, Rita; Owoc, Abbey; Spear, Richard; Jones, Jeffrey; Halloran, Kevin; Swarm, H. Scott
Subject: Dunkard Creek Fish Kill

Just received a call from Minter Foster with the WV DEP's Environmental Enforcement group for Waste & Wastewater, based in Fairmont. His supervisor is Brad Swiger. Phone for both is 304-368-3960.

They learned of & have been investigating a fish kill in the WV portion of Dunkard Creek since last Tuesday (Sept 1). It reportedly started Saturday, August 29. Cause unknown.

They have seen dead fish ~1 mile upstream of Pentress, WV, which is about 3 crow miles east of Brave & 7 miles west of Mount Morris. Mussels have been affected even further upstream. Dunkard Creek crosses the PA-WV border several times in this area.

They are looking at coal mine discharges in WV. There are 3 active mines (including Blacksville #2 on the WV Fork with discharge conductivity = 22,000 & Federal #2 with discharge conductivity = 6000) and 1 abandoned mine (Loveridge(?), conductivity = 17,000). Stream conductivity is ~2500 near Mount Morris, PA. pH is ~8, D.O. is 6.9 to 10.

He inquired about Accurate Brass Co. in Brave (Wayne Twp, Greene Cty). Our files show they have no NPDES permit. Sewage goes to Brave STP. Pickling wastes are hauled away. Per Sam, there is groundwater contamination from old wet gas plant, and they once had lagoons associated with the brass business. Between WQ & Waste Mgmt, somebody will inspect them.

WV biologists have reported this to PFBC.

Pentress map link:
http://westvirginia.hometownlocator.com/wv/monongalia/pentress.cfm

Coordinates from Lou

Louis Reynolds to: Chris Urban — 09/09/2009 10:10 PM

Cc: Louis Reynolds

39.71864982 -80.27685318 08/27/09 10:20:11 AM Garmin GPSMap 76 Cx
West Virginia Fork Dunkard Creek Blacksville #2 mine at Wana point was averaged for ~1 minute to ~12 feet accuracy.

Chris,

these coordinates actually take you ~ 200 M or so downstream of the outfall. The outfall is before the road comes up by the mine treatment pond. It comes out of a culvert on the right side of stream (looking upstream). The culvert is caked with Mn.

My office number is 304-234-0244. I have to go in - all my gear is there. Hopefully I can join you.

Lou

RE: Speculation on Dunkard Kills- Continuous data from sonde near Pentress

Wirts, John C to: Swiger, Bradley C, Campbell, Patrick V , Mandirola, Scott G, Zeto, Michael A, Carico, Charles M , Louis Reynolds, Frank Borsuk 09/10/2009 09:59 AM

Cc: "Montali, David A", "Jernejcic, Frank" , "Hickman, Joseph M", "Foster, Minter C", "Lemons, Randal S" , "Bailey, Jeffrey E"

History: This message has been forwarded.

Folks,
We downloaded data from the sonde that we had deployed on Dunkard Ck(~ 2 miles downstream of Pentress – see map).
The conductivity increases from ~ 1750 uS on Aug 17th to ~2400 on Sept 6th with a couple of precipitation induced dips(Aug 21-23; Aug 30; and Sept. 8).

There is a drop in DO that seems to coincide with(or precede?) the start of the fish kill. It dropped to 3.49 mg/L on Saturday Aug 29th. The daily swings in DO are as big as any I've seen over the last several years Is algae or other plant growth particularly heavy on Dunkard this year?

The sonde has been redeployed We will share these data as they become available.

John

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

From: Swiger, Bradley C
Sent: Tuesday, September 08, 2009 8:47 AM
To: Campbell, Patrick V; Mandirola, Scott G; Zeto, Michael A; Carico, Charles M
Cc: Wirts, John C; Montali, David A; Jernejcic, Frank; Hickman, Joseph M; Foster, Minter C
Subject: RE: Speculation on Dunkard Kills

Thanks Pat.

We collected field readings on Thursday and Friday and collected samples on Friday . We've already asked Mike Carico to review flow data from the mine discharges and to inquire if they might have changed something in treatment since this is a likely suspect . We will have sampling results next week .

The most obvious indicator (besides dead aquatic life) at this time are field readings which show a rapid increase in conductivity as we move upstream , dramatically dropping above mine discharges, and gradually escalating again as we move upstream. The headwaters of the WV Fork originate at a Consol AMD plant .

We also picked up some high levels of conductivity at the mouth of the PA Fork , but the sampling station was not a great site and may have been influenced by the mainstem . We are contacting PA officials about a rumor of a possible spill at a "brass" plant near the mouth of the PA Fork .

We have a conference call at 9:00 to discuss findings to date . Let us know your results when you pull the meter at the WV /PA line.

Brad

From: Campbell, Patrick V
Sent: Friday, September 04, 2009 12:06 PM
To: Mandirola, Scott G; Zeto, Michael A; Swiger, Bradley C; Carico, Charles M
Cc: Wirts, John C; Montali, David A; Jernejcic, Frank
Subject: Speculation on Dunkard Kills

Folks,

Here is some desktop information/**speculation** that may inform the fish kill investigation .

Take a look at the attached powerpoint. It's 3 slides overlay continuous data taken at the **mouth** of Dunkard. I suspect around the time of the kill, somebody turned off a pump which was putting out 20 cfs of water. Turning off the pump lowered conductivity in the creek by 300 micro's.

The rub is the flow and water quality data are not lining up. My suspicion is one of the meters is two days off. I've got a call into USGS to sort this out. My guess is the flow data has the accurate date, with the wq data being two days off. ONLY A SUSPICION AT THIS POINT.

Also keep in mind this data is from the mouth of Dunkard, so there is a travel time delay. The stream temp was also slightly affected, likely moderated by the distance to the event.

A clue may be found in determining who has a pump capable of putting out 20 cfs. Turning the pump off may have induced some thermal or pH shock to the critters.

We have a continuous probe at the WV/PA line that may contain more clues. The probe must be retrieved before we can get the data. We'll try to pull it next week.

Pat


m-01-20 map.jpg


Dunkard Aug 17_Sept0909.xlsx

RE: Dunkard Creek Fish Kill

Arway, John to Qualters, Thomas, Svetahor, Emil 09/12/2009 12:00 PM

Cc: "Brethauer, Charles", "Young, Leroy", "Shepler, Laurie", "Regenstein, Ellen", Frank Borsuk, Louis Reynolds

FYI-- yesteray's field report

John

From: Urban, Chris
Sent: Friday, September 11, 2009 10:32 PM
To: Arway, John; Svetahor, Emil
Cc: Welte, Nevin; Spear, Richard
Subject: RE: Dunkard Creek Fish Kill

Friday, September 11, 2009 Dunkard Creek Fish Kill Update

Nevin and I met Mike Depew of Area 7 this am to further track the pollution/kill zone and conduct 2nd pass dead fish surveys at established 100 meter sampling stations.

Since the lower teminus of the pollution had moved through Mt Morris yesterday, we moved further downstream to check Bald Hill and two other locations further east on Dunkard Creek for stressed/dying or dead fish and mussels.

The first site we checked was an Area 7 smallmouth sampling location (Old Water Works Road). This site is downstream of the Dana Mine. While the stream appeared to be somewhat impacted already (little aquatic life), we did not observe dead or dying fish/mussels.

At the Bald Hill Bridge site, where we had witnessed stressed and dead mussels yesterday, but also observed other live mussels and fish, we did not observe any dead fish.

Moving further west, we established a new site near the bridge on Gas Co. Road. Here we found two beached adult carp, and one 13" smallmouth bass on the shore below the bald hill bridge. It was difficult to determine if these fish died of natural causes (e.g., predation) or pollution. However, we did observe schooled shiners on the southern shoreline behaving unusually, and potentially stressed - turning over completely, suspending momentarily belly up before turning back over.

The next site, Mt Morris bridge, WCO Bob Wheeler joined us for fish sampling. This is where two days ago we found our first healthy fish/mussels since we had been on Dunkard Creek this week. We were hoping it was the eastern terminus of the kill zone, until yesterdays sampling when we found dead, dying and stressed fish and mussels. Today this site had significantly more fresh-dead fish, mussels, and mudpuppies, including several large adult smallmouth. It should be noted that nearly all of the critters collected here were fresh dead.

Moving further west to the next station, Creek Road, also endearingly known as "Car Wash" to the locals, we found less fish and a group of approximately 10-12 local onlookers mostly gauking at the large and small fish stacked up at

the mouth of Shannon Run which enters Dunkard Creek from the north side . Today we noted additional stressed fish , including muskies, flathead catfish and drum. We had collected a number of dead large fish (e.g., redhorses, drum, channel catfish) and observed large stressed flathead catfish here the previous day. Today, the number of small fish (e.g., shiners, darters) was much greater, but overall we captured/removed much less fish.

Musky Bridge - the previous day, this station comprised the largest biomass of fish and 64 dead mudpuppies. Today, the numbers had dropped off signifcantly for all species. Dead mussels were observed here.

Moving further west, our next sampling station is in Blacksville , approximately 10 miles away. Dunkard Creek is mostly in WV for this entire stretch between stations. Fish kills were noted in several locations , but mostly around Pentress, WV. Yesterday, we did not observe any dead fish at this sampling station. Today would prove to be no different .

Our final fish sampling station on Dunkard is in Brave , below dam#2. Today we conducted the third and final fish sampling pass . The dead fish numbers have dropped off significantly.

On Saturday, Nevin and I will be meeting WCO Wheeler and one of this deputies in the morning to conduct 3rd passes at the established fish sampling stations.

From: Arway, John
Sent: Friday, September 11, 2009 4:18 PM
To: Urban, Chris
Subject: FW: Dunkard Creek Fish Kill

From: Brethauer, Charles
Sent: Friday, September 11, 2009 3:49 PM
To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'badley.c.swiger@wv.org'; 'Lemme, Brian M'
Subject: FW: Dunkard Creek Fish Kill

FYI, this is an update distributed within PADEP this afternoon . PA DEP sample results should be available by end of next week .

Friday's Update:

* PFBC found mussels & fish dying yesterday in Dunkard Creek several miles east of Mt. Morris near Bald Hill. It's not clear if there is a slug moving through or if there is an ongoing discharge into Dunkard Creek . More than 20 stream miles are affected.

* WV DEP's investigation has been focusing on 1 or 2 deep mines near Wana, WV that discharge into the WV Fork. The WV Fork enters PA & joins the PA Fork (forming Dunkard Creek) near Shamrock, west of Brave.

* PFBC reports no dead fish seen in PA Fork (west of Shamrock) but there are live fish & mussels. This reinforces preliminary conclusion that the pollution source is in WV.

* PA DEP WQS Stacy Cox did an outstanding job collecting samples & field measurements along Dunkard Creek yesterday from Shamrock to Bald Hill , and shipped the samples to DEP lab yesterday evening . Conductivity readings continue to point to the WV Fork as source of problem (conductivity 24,500 uS/cm) rather than PA Fork (conductivity 336 uS/cm). Details are in the attachment.

* WV & EPA have also collected stream samples for lab analysis . There will be lots of data to evaluate in the coming weeks .

Charlie Brethauer
412-442-4069

PFBC's latest report on the situation:
-----Original Message-----
From: Urban, Chris
Sent: Friday, September 11, 2009 7:05 AM
To: Arway, John; Svetahor, Emil
Cc: Spear, Richard; Welte, Nevin
Subject: Dunkard Crk update for Thursday
Well, we were surprised yesterday morning. The area we thought was the lower portion of the pollution event (Mt Morris bridge- because we observed live fish and mussels on Wed) was now affected. We sampled mussels and fish there and found fresh dead and dying mussels and fish . We went further downstream to what the locals call "Pigeon Hole", near Bald Hill, and found a couple of fresh dead and dying mussels, but no dead fish - but due to observations in in previous days, we now expect the pollution slug to continue on and will expect to see dead fish there today. We set up a total of 5 fish sampling stations in PA from Mt Morris to Brave. 4 of the 5 stations had fairly significant fish kills, but one of the sites, we only observed dead mussels but no fish . Perhaps there is some spring/groundwater influences that are buffering this area, allowing the fish to survive. However, above this, at our last station near Brave, we found dead fish, mussels, mudpuppies. At the second dam above this sampling location, we found well over 300 dead fish representing 18 species at the dam breast and below. We continue to see new dead and dying fish at 4 of the 5 sampling stations, suggesting potentially that residual pollution is still in the water. We plan to investigate the lower reach of the kill today, and do repeat fish sampling passes at stations needing 2nd passes. John and I plan to talk at 10am to discuss further.
Chris

Dunkard Creek Fish Kill- Sept. 12 Update

Arway, John to Qualters, Thomas, Svetahor, Emil 09/14/2009 07:24 AM

Cc: "Brethauer, Charles", "Young, Leroy", "Shepler, Laurie", "Regenstein, Ellen", Frank Borsuk, Louis Reynolds

History: This message has been forwarded.

FYI

-----Original Message-----

From: Urban, Chris

Sent: Monday, September 14, 2009 2:00 AM

To: Arway, John; Svetahor, Emil

Cc: Welte, Nevin; Spear, Richard

Subject: RE: Dunkard Creek Fish Kill

Update for Saturday, September 12, 2009--Dunkard Creek Fish Kill update

On Saturday morning, Nevin and I met WCO Bob Wheeler at Mount Morris to continue sampling established fish sampling stations on Dunkard Creek, which add up to 8 now...

As we have done previously, we worked the sampling stations moving west. The most eastern site, Old Water Works Road, still did not reveal any dead fish or mussels. At the next site, Meadow Run, we observed a few stressed and fresh dead mussels, and stressed but no dead fish - suggesting that the leading edge of the pollution plume was potentially upon this area. At Gas Co. Road, where we had observed stressed fish the day before, we documented our first dead fish at this site - a number of fresh dead smallmouth bass and redhorses, suggesting that the pollution zone had recently passed through the station. At Mount Morris bridge, we observed what appeared to be as significant a (fresh) fish kill as Friday - which like Friday's kill, was comprised of a relatively high number of smallmouth bass. This site appears to be in the middle of the pollution plume.

Next, we skipped ahead to the Muskie Bridge site, because we had heard from locals that there were a number of dead muskies at the Car Wash /Creek Rd site - and we needed voucher specimens. WCO Wheeler had arranged for one of his deputies to bring a cooler to us to preserve at least one dead muskie and a number of other larger dead fish as vouchers. The dead fish numbers have dropped off significantly at the Car Wash site, but we do continue to observe some new fresh dead fish here. Noteworthy at the Muskie Bridge site is that after 3 passes at this site, approximately~100 dead mudpuppies have been found here, which is the highest number of mudpuppies for any of the 8 sampling stations.

We came back to the Car Wash site, and met DWCO Tom Byrnes with his coolers packed with ice. This site had a lot of fresh kill, including approximately eight large dead muskies lined up on the northern shoreline. Like Friday, several large muskies, as well as redhorses and other smaller fish were stacked up at the mouth of Shannon Run. These fish appeared to be stressed and moving up the tributary to avoid the mainstem. The onlookers informed us that 3 of the muskies (two largest and smallest muskie) and one walleye were brought to the northern shore/beach to show us. WCO Bonney went to get a statement from the person that moved the fish into the sampling area. We excluded these four fish from our counts and measurements for this station. As we prepared to count and process the fish at this station, a freelance cameraman/reporter for network Channel 4 Action News out of Pittsburgh surprised me somewhat, as he quickly approached me and started asking questions. I asked him to call our Press Chief (Eric Levis), but he said he would need to run the story on Sat. night. The news brief was on the evening news in the Pittsburgh viewing area, and the morning news the following day.

We next hop-scotched to Blackville and were in for a surprise. The previous two days we had not observed any dead, dying, or stressed fish. On this day, we would observe a number of very fresh-dead smallmouth bass and redhorses. Both appear to be fairly sensitive and the first to appear as the pollution has moved through Dunkard Creek. This was disturbing as well as puzzling, as it appeared that the fish kill had been subsiding at this site. Fresh-killed fish here potentially suggests that a new slug of pollution had entered this area, or fish that moved up the tributaries to avoid the Dunkard main stem toxicity, have returned and been mortally affected. Because Dunkard Creek moves east and south into WV, we notified the WV DNR biologists that there may be another potential slug of pollution entering WV waters of Dunkard Creek.

I returned to central PA on Sunday. WCO Wheeler and DWCO Byrnes were going to follow-up and check the sites for new dead fish, as well as look for dead fish at the Dunkard Creek/Mon River confluence. At this point, I have not heard the results.

Natural Diversity Section staff will be sampling fish and mussels on Monday and Tuesday. We will continue to monitor the fish/mussel kill until we see the numbers dropping off, or as needed.

Call me with questions or further coordination, 814-360-4531.

Chris

-----Original Message-----
From: Arway, John
Sent: Saturday, September 12, 2009 11:57 AM
To: Qualters, Thomas; Svetahor, Emil
Cc: Brethauer, Charles; Young, Leroy; Shepler, Laurie; Regenstein, Ellen; borsuk.frank@epa.gov; reynolds.louis@epamail.epa.gov
Subject: RE: Dunkard Creek Fish Kill

FYI-- yesteray's field report

John
From: Urban, Chris
Sent: Friday, September 11, 2009 10:32 PM
To: Arway, John; Svetahor, Emil
Cc: Welte, Nevin; Spear, Richard
Subject: RE: Dunkard Creek Fish Kill

Friday, September 11, 2009 Dunkard Creek Fish Kill Update

Nevin and I met Mike Depew of Area 7 this am to further track the pollution/kill zone and conduct 2nd pass dead fish surveys at established 100 meter sampling stations.

Since the lower teminus of the pollution had moved through Mt Morris yesterday, we moved further downstream to check Bald Hill and two other locations further east on Dunkard Creek for stressed/dying or dead fish and mussels.

The first site we checked was an Area 7 smallmouth sampling location (Old Water Works Road). This site is downstream of the Dana Mine. While the stream appeared to be somewhat impacted already (little aquatic life), we did not observe dead or dying fish/mussels.

At the Bald Hill Bridge site, where we had witnessed stressed and dead mussels yesterday, but also observed other live mussels and fish, we did not observe any dead fish.

Moving further west, we established a new site near the bridge on Gas Co. Road. Here we found two beached adult carp, and one 13" smallmouth bass on the shore below the bald hill bridge. It was difficult to determine if these fish died of natural causes (e.g., predation) or pollution. However, we did observe schooled shiners on the southern shoreline behaving unusually, and potentially stressed - turning over completely, suspending momentarily belly up before turning back over.

The next site, Mt Morris bridge, WCO Bob Wheeler joined us for fish sampling. This is where two days ago we found our first healthy fish/mussels since we had been on Dunkard Creek this week. We were hoping it was the eastern terminus of the kill zone, until yesterdays sampling when we found dead, dying and stressed fish and mussels. Today this site had significantly more fresh-dead fish, mussels, and mudpuppies, including several large adult smallmouth. It should be noted that nearly all of the critters collected here were fresh dead.

Moving further west to the next station, Creek Road, also endearingly known as "Car Wash" to the locals, we found less fish and a group of approximately 10-12 local onlookers mostly gauking at the large and small fish stacked up at the mouth of Shannon Run which enters Dunkard Creek from the north side. Today we noted additional stressed fish, including muskies, flathead catfish and drum. We had collected a number of dead large fish (e.g., redhorses, drum, channel catfish) and observed large stressed flathead catfish here the previous day. Today, the number of small fish (e.g., shiners, darters) was much greater, but overall we captured/removed much less fish.

Musky Bridge - the previous day, this station comprised the largest biomass of fish and 64 dead mudpuppies. Today, the numbers had dropped off signifcantly for all species. Dead mussels were observed here.

Moving further west, our next sampling station is in Blacksville, approximately 10 miles away. Dunkard Creek is mostly in WV for this entire stretch between stations. Fish kills were noted in several locations, but mostly around Pentress, WV. Yesterday, we did not observe any dead fish at this sampling station. Today would prove to be no different.

Our final fish sampling station on Dunkard is in Brave, below dam#2. Today we conducted the third and final fish sampling pass. The dead fish numbers have dropped off significantly.

On Saturday, Nevin and I will be meeting WCO Wheeler and one of this deputies in the morning to conduct 3rd passes at the established fish sampling stations.

From: Arway, John
Sent: Friday, September 11, 2009 4:18 PM
To: Urban, Chris
Subject: FW: Dunkard Creek Fish Kill

From: Brethauer, Charles
Sent: Friday, September 11, 2009 3:49 PM
To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'badley.c.swiger@wv.org'; 'Lemme, Brian M'
Subject: FW: Dunkard Creek Fish Kill

FYI, this is an update distributed within PADEP this afternoon. PA DEP sample results should be available by end of next week.

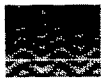
Friday's Update:

- PFBC found mussels & fish dying yesterday in Dunkard Creek several miles east of Mt. Morris near Bald Hill. It's not clear if there is a slug moving through or if there is an ongoing discharge into Dunkard Creek. More than 20 stream miles are affected.
- WV DEP's investigation has been focusing on 1 or 2 deep mines near Wana, WV that discharge into the WV Fork. The WV Fork enters PA & joins the PA Fork (forming Dunkard Creek) near Shamrock, west of Brave.
- PFBC reports no dead fish seen in PA Fork (west of Shamrock) but there are live fish & mussels. This reinforces preliminary conclusion that the pollution source is in WV.
- PA DEP WQS Stacy Cox did an outstanding job collecting samples & field measurements along Dunkard Creek yesterday from Shamrock to Bald Hill, and shipped the samples to DEP lab yesterday evening. Conductivity readings continue to point to the WV Fork as source of problem (conductivity 24,500 uS/cm) rather than PA Fork (conductivity 336 uS/cm). Details are in the attachment.
- WV & EPA have also collected stream samples for lab analysis. There will be lots of data to evaluate in the coming weeks.

Charlie Brethauer
412-442-4069

PFBC's latest report on the situation:
-----Original Message-----
From: Urban, Chris
Sent: Friday, September 11, 2009 7:05 AM
To: Arway, John; Svetahor, Emil
Cc: Spear, Richard; Welte, Nevin

Subject: Dunkard Crk update for Thursday
Well, we were surprised yesterday morning. The area we thought was the lower portion of the pollution event (Mt Morris bridge- because we observed live fish and mussels on Wed) was now affected. We sampled mussels and fish there and found fresh dead and dying mussels and fish. We went further downstream to what the locals call "Pigeon Hole", near Bald Hill, and found a couple of fresh dead and dying mussels, but no dead fish - but due to observations in in previous days, we now expect the pollution slug to continue on and will expect to see dead fish there today. We set up a total of 5 fish sampling stations in PA from Mt Morris to Brave. 4 of the 5 stations had fairly significant fish kills, but one of the sites, we only observed dead mussels but no fish. Perhaps there is some spring/groundwater influences that are buffering this area, allowing the fish to survive. However, above this, at our last station near Brave, we found dead fish, mussels, mudpuppies. At the second dam above this sampling location, we found well over 300 dead fish representing 18 species at the dam breast and below. We continue to see new dead and dying fish at 4 of the 5 sampling stations, suggesting potentially that residual pollution is still in the water. We plan to investigate the lower reach of the kill today, and do repeat fish sampling passes at stations needing 2nd passes. John and I plan to talk at 10am to discuss further.
Chris



Fw: Dunkard Creek Fish Kill- Sept. 12 Update

Louis Reynolds to: Campbell, Patrick V, Patrick V 09/14/2009 08:06 AM

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/14/2009 08:02 AM -----

From:	"Arway, John" <jarway@state.pa.us>
To:	"Qualters, Thomas" <tqualters@state.pa.us>, "Svetahor, Emil" <esvetahor@state.pa.us>
Cc:	"Brethauer, Charles" <cbrethauer@state.pa.us>, "Young, Leroy" <leyoung@state.pa.us>, "Shepler, Laurie" <lshepler@state.pa.us>, "Regenstein, Ellen" <eregenstei@state.pa.us>, Frank Borsuk/R3/USEPA/US@EPA, Louis Reynolds/R3/USEPA/US@EPA
Date:	09/14/2009 07:24 AM
Subject:	Dunkard Creek Fish Kill- Sept. 12 Update

FYI

-----Original Message-----

From: Urban, Chris

Sent: Monday, September 14, 2009 2:00 AM

To: Arway, John; Svetahor, Emil

Cc: Welte, Nevin; Spear, Richard

Subject: RE: Dunkard Creek Fish Kill

Update for Saturday, September 12, 2009--Dunkard Creek Fish Kill update

On Saturday morning, Nevin and I met WCO Bob Wheeler at Mount Morris to continue sampling established fish sampling stations on Dunkard Creek, which add up to 8 now...

As we have done previously, we worked the sampling stations moving west. The most eastern site, Old Water Works Road, still did not reveal any dead fish or mussels. At the next site, Meadow Run, we observed a few stressed and fresh dead mussels, and stressed but no dead fish - suggesting that the leading edge of the pollution plume was potentially upon this area. At Gas Co. Road, where we had observed stressed fish the day before, we documented our first dead fish at this site - a number of fresh dead smallmouth bass and redhorses, suggesting that the pollution zone had recently passed through the station. At Mount Morris bridge, we observed what appeared to be as significant a (fresh) fish kill as Friday

- which like Friday's kill, was comprised of a relatively high number of smallmouth bass. This site appears to be in the middle of the pollution plume.

Next, we skipped ahead to the Muskie Bridge site, because we had heard from locals that there were a number of dead muskies at the Car Wash /Creek Rd site - and we needed voucher specimens. WCO Wheeler had arranged for one of his deputies to bring a cooler to us to preserve at least one dead muskie and a number of other larger dead fish as vouchers. The dead fish numbers have dropped off significantly at the Car Wash site, but we do continue to observe some new fresh dead fish here. Noteworthy at the Muskie Bridge site is that after 3 passes at this site, approximately~100 dead mudpuppies have been found here, which is the highest number of mudpuppies for any of the 8 sampling stations.

We came back to the Car Wash site , and met DWCO Tom Byrnes with his coolers packed with ice. This site had a lot of fresh kill, including approximately eight large dead muskies lined up on the northern shoreline. Like Friday, several large muskies, as well as redhorses and other smaller fish were stacked up at the mouth of Shannon Run. These fish appeared to be stressed and moving up the tributary to avoid the mainstem. The onlookers informed us that 3 of the muskies (two largest and smallest muskie) and one walleye were brought to the northern shore/beach to show us. WCO Bonney went to get a statement from the person that moved the fish into the sampling area. We excluded these four fish from our counts and measurements for this station. As we prepared to count and process the fish at this station, a freelance cameraman/reporter for network Channel 4 Action News out of Pittsburgh surprised me somewhat, as he quickly approached me and started asking questions. I asked him to call our Press Chief (Eric Levis), but he said he would need to run the story on Sat. night. The news brief was on the evening news in the Pittsburgh viewing area, and the morning news the following day.

We next hop-scotched to Blackville and were in for a surprise. The previous two days we had not observed any dead, dying, or stressed fish. On this day, we would observe a number of very fresh-dead smallmouth bass and redhorses. Both appear to be fairly sensitive and the first to appear as the pollution has moved through Dunkard Creek. This was disturbing as well as puzzling, as it appeared that the fish kill had been subsiding at this site. Fresh-killed fish here potentially suggests that a new slug of pollution had entered this area, or fish that moved up the tributaries to avoid the Dunkard main stem toxicity, have returned and been mortally affected. Because Dunkard Creek moves east and south into WV, we notified the WV DNR biologists that there may be another potential slug of pollution entering WV waters of Dunkard Creek.

I returned to central PA on Sunday. WCO Wheeler and DWCO Byrnes were going to follow-up and check the sites for new dead fish, as well as look for dead fish at the Dunkard Creek/Mon River confluence. At this point, I have not heard the results.

Natural Diversity Section staff will be sampling fish and mussels on Monday and Tuesday. We will continue to monitor the fish/mussel kill until we see the numbers dropping off, or as needed.

Call me with questions or further coordination, 814-360-4531.

Chris

-----Original Message-----
From: Arway, John
Sent: Saturday, September 12, 2009 11:57 AM
To: Qualters, Thomas; Svetahor, Emil
Cc: Brethauer, Charles; Young, Leroy; Shepler, Laurie; Regenstein, Ellen; borsuk.frank@epa.gov; reynolds.louis@epamail.epa.gov
Subject: RE: Dunkard Creek Fish Kill

FYI-- yesteray's field report

John
From: Urban, Chris
Sent: Friday, September 11, 2009 10:32 PM
To: Arway, John; Svetahor, Emil
Cc: Welte, Nevin; Spear, Richard
Subject: RE: Dunkard Creek Fish Kill

Friday, September 11, 2009 Dunkard Creek Fish Kill Update

Nevin and I met Mike Depew of Area 7 this am to further track the pollution/kill zone and conduct 2nd pass dead fish surveys at established 100 meter sampling stations.

Since the lower teminus of the pollution had moved through Mt Morris yesterday, we moved further downstream to check Bald Hill and two other locations further east on Dunkard Creek for stressed/dying or dead fish and mussels.

The first site we checked was an Area 7 smallmouth sampling location (Old Water Works Road). This site is downstream of the Dana Mine. While the stream appeared to be somewhat impacted already (little aquatic life), we did not observe dead or dying fish/mussels.

At the Bald Hill Bridge site, where we had witnessed stressed and dead mussels yesterday, but also observed other live mussels and fish, we did not observe any dead fish.

Moving further west, we established a new site near the bridge on Gas Co. Road. Here we found two beached adult carp, and one 13" smallmouth bass on the shore below the bald hill bridge. It was difficult to determine if these fish died of natural causes (e.g., predation) or pollution. However, we did observe schooled shiners on the southern shoreline behaving unusually, and potentially stressed - turning over completely, suspending momentarily belly up before turning back over.

The next site, Mt Morris bridge, WCO Bob Wheeler joined us for fish sampling. This is where two days ago we found our first healthy fish/mussels since we had been on Dunkard Creek this week. We were hoping it was the eastern terminus of the kill zone, until yesterdays sampling when we found dead, dying and stressed fish and mussels. Today this site had significantly more fresh-dead fish, mussels, and mudpuppies, including several large adult smallmouth. It should be noted that nearly all of the critters collected here were fresh dead.

Moving further west to the next station, Creek Road, also endearingly known as "Car Wash" to the locals, we found less fish and a group of approximately 10-12 local onlookers mostly gauking at the large and small fish stacked up at the mouth of Shannon Run which enters Dunkard Creek from the north side. Today we noted additional stressed fish, including muskies, flathead catfish and drum. We had collected a number of dead large fish (e.g., redhorses, drum, channel catfish) and observed large stressed flathead catfish here the previous day. Today, the number of small fish (e.g., shiners, darters) was much greater, but overall we captured/removed much less fish.

Musky Bridge - the previous day, this station comprised the largest biomass of fish and 64 dead mudpuppies. Today, the numbers had dropped off signifcantly for all species. Dead mussels were observed here.

Moving further west, our next sampling station is in Blacksville, approximately 10 miles away. Dunkard Creek is mostly in WV for this entire stretch between stations. Fish kills were noted in several locations, but mostly around Pentress, WV. Yesterday, we did not observe any dead fish at this sampling station. Today would prove to be no different.

Our final fish sampling station on Dunkard is in Brave, below dam#2. Today we conducted the third and final fish sampling pass. The dead fish numbers have dropped off significantly.

On Saturday, Nevin and I will be meeting WCO Wheeler and one of this deputies in the morning to conduct 3rd passes at the established fish sampling stations.

From: Arway, John
Sent: Friday, September 11, 2009 4:18 PM
To: Urban, Chris
Subject: FW: Dunkard Creek Fish Kill

From: Brethauer, Charles
Sent: Friday, September 11, 2009 3:49 PM
To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'badley.c.swiger@wv.org'; 'Lemme, Brian M'
Subject: FW: Dunkard Creek Fish Kill

FYI, this is an update distributed within PADEP this afternoon. PA DEP sample results should be available by end of next week.

Friday's Update:

- PFBC found mussels & fish dying yesterday in Dunkard Creek several miles east of Mt. Morris near Bald Hill. It's not clear if there is a slug moving through or if there is an ongoing discharge into Dunkard Creek. More than 20 stream miles are affected.
- WV DEP's investigation has been focusing on 1 or 2 deep mines near Wana, WV that discharge into the WV Fork. The WV Fork enters PA & joins the PA Fork (forming Dunkard Creek) near Shamrock, west of Brave.
- PFBC reports no dead fish seen in PA Fork (west of Shamrock) but there are live fish & mussels. This reinforces preliminary conclusion that the pollution source is in WV.
- PA DEP WQS Stacy Cox did an outstanding job collecting samples & field measurements along Dunkard Creek yesterday from Shamrock to Bald Hill, and shipped the samples to DEP lab yesterday evening. Conductivity readings continue to point to the WV Fork as source of problem (conductivity 24,500 uS/cm) rather than PA Fork (conductivity 336 uS/cm). Details are in the attachment.
- WV & EPA have also collected stream samples for lab analysis. There will be lots of data to evaluate in the coming weeks.

Charlie Brethauer
412-442-4069

PFBC's latest report on the situation:
-----Original Message-----
From: Urban, Chris
Sent: Friday, September 11, 2009 7:05 AM
To: Arway, John; Svetahor, Emil
Cc: Spear, Richard; Welte, Nevin
Subject: Dunkard Crk update for Thursday
Well, we were surprised yesterday morning. The area we thought was the lower portion of the pollution event (Mt Morris bridge- because we observed live fish and mussels on Wed) was now affected. We sampled mussels and fish there and found fresh dead and dying mussels and fish. We went further downstream to what the locals call "Pigeon Hole", near Bald Hill, and found a couple of fresh dead and dying mussels, but no dead fish - but due to observations in in previous days, we now expect the pollution slug to continue on and will expect to see dead fish there today. We set up a total of 5 fish sampling stations in PA from Mt Morris to Brave. 4 of the 5 stations had fairly significant fish kills, but one of the sites, we only observed dead mussels but no fish. Perhaps there is some spring/groundwater influences that are buffering this area, allowing the fish to survive. However, above this, at our last station near Brave, we found dead fish, mussels, mudpuppies. At the second dam above this sampling location, we found well over 300 dead fish representing 18 species at the dam breast and below. We continue to see new dead and dying fish at 4 of the 5 sampling stations, suggesting potentially that residual pollution is still in the water. We plan to investigate the lower reach of the kill today, and do repeat fish sampling passes at stations needing 2nd passes. John and I plan to talk at 10am to discuss further.
Chris

FW: Blacksville No 1 lat/long

Campbell, Patrick V to: Louis Reynolds 09/14/2009 09:33 AM

From: Wirts, John C
Sent: Monday, September 14, 2009 9:19 AM
To: Campbell, Patrick V
Subject: Blacksville No 1 lat/long

39 43 4.61
-80 11 15.97

At the downstream edge of reclaimed area near stream

Historic Dunkard Data up to July1, 2009

Campbell, Patrick V to: Louis Reynolds, Swiger, Bradley C, Foster, Minter C, Frank Jemejcic, Zeto, Michael A, Mandirola, Scott G 09/14/2009 09:46 AM

Cc: "Montali, David A", "Wirts, John C", "Bailey, Jeffrey E"

This contains info that supports my statement that no previous chloride value recorded by DWWM-Watershed has exceeded 660 mg/l in WV Fork. Line 609 of the crosstab spreadsheet starts the WV Fork data.

From: Whitman, Michael J
Sent: Saturday, September 12, 2009 3:19 PM
To: Campbell, Patrick V
Cc: Bailey, Jeffrey E; Wirts, John C
Subject: Select Dunkard Data up to July 1, 2009

Here is what I pulled. The Crosstab has Cond, pH, Lab Cond, Chloride, Sulfate, TSS, and what little TDS data we have.

Mike[attachment "Dunkard Fish Kill Data_Crosstab.xls" deleted by Louis Reynolds/R3/USEPA/US]

dunkard

Zeto, Michael A to: Louis Reynolds 09/14/2009 04:34 PM

History: This message has been forwarded.

You can put PA investigators in touch with me. My phone # is 304-926-0470

Dunkard Creek Fish Kill

Brethauer, Charles to: Arway, John, Qualters, Thomas, Svetahor, Emil, Frank Borsuk, 'bradley.c.swiger@wv.gov', 'Lemme, Brian M' , Louis Reynolds, 'teerod@windstream.net' 09/14/2009 04:49 PM

Cc: "Spear, Richard", "Harper, Samuel" , "Halloran, Kevin", "Jones, Jeffrey", "Swarm, H. Scott", "Cox, Stacy", "Dunn, Howard", "Flannigan, Zachary"

This attachment is PA DEP samples from last Thursday, Sept 10. Some of you have seen it, but there is a change to the description of where the last sample (Bald Hill Church Road) was collected.

Tomorrow (Tuesday) we will again sample these locations.

VOA sample results for Sept 10 show non-detect except for #1552087 (near Cerro Products) shows 3 ug/l acetone & 9 ug/l t-butyl alcohol.

Dunkard Creek 9-10.doc

dunkard creek update

Louis Reynolds / t o : cbrethauer, Chad Harsh, John Forren, rspear, David McGuigan, John Arway, curban, teerod, john.c.wirts, Patrick.V.Campbell, Larry Merrill, Cindy_Tibbott, PZIEMKIE, Jeffrey Lapp, Jessica Martinsen, Helene Drago, Zeto, Michael A

09/14/2009 07:40 PM

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

dunkard.doc

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

WVDEP enforcement contact

Louis Reynolds / t o : teerod, Zeto, Michael A

09/14/2009 07:53 PM

Cc: reynolds.louis, John Arway

Tom,

Please coordinate with Mike Zeto of the WVDEP on the investigation.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/14/2009 07:45 PM -----

From:	"Zeto, Michael A" <Michael.A.Zeto@wv.gov>
To:	Louis Reynolds/R3/USEPA/US@EPA
Date:	09/14/2009 04:34 PM
Subject:	dunkard

You can put PA investigators in touch with me. My phone # is 304-926-0470

WVDEP enforcement contact

Louis Reynolds to teerod, Zeto, Michael A 09/14/2009 07:53 PM

Cc: reynolds.louis, John Arway

Tom,

Please coordinate with Mike Zeto of the WVDEP on the investigation.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/14/2009 07:45 PM -----

From:	"Zeto, Michael A" <Michael.A.Zeto@wv.gov>
To:	Louis Reynolds/R3/USEPA/US@EPA
Date:	09/14/2009 04:34 PM
Subject:	dunkard

You can put PA investigators in touch with me. My phone # is 304-926-0470

RE: dunkard creek update

John Arway to Louis Reynolds 09/14/2009 09:26 PM

Nice compilation Lou. First printed data I've seen. Thanks for the help.

John

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, September 14, 2009 7:41 PM
To: cbrethauer@state.pa.us; Harsh.Chad@epamail.epa.gov; Forren.John@epamail.epa.gov; rspear@state.pa.us; Mcguigan.David@epamail.epa.gov; John Arway; curban@state.pa.us; teerod@wavestream.net; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Merrill.Larry@epamail.epa.gov; Cindy_Tibbott@fws.gov; PZIEMKIE@wvu.edu; Lapp.Jeffrey@epamail.epa.gov; Martinsen.Jessica@epamail.epa.gov; Drago.Helene@epamail.epa.gov; Zeto, Michael A
Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

FW: blood gas analyzer

Wirts, John C to: Louis Reynolds 09/15/2009 12:13 PM

History: This message has been forwarded.

Rather than tell you what Chris found, here's his email...

From: Barry, Christopher
Sent: Tuesday, September 15, 2009 11:58 AM
To: Wirts, John C
Subject: blood gas analyzer

Hi John,

I checked the consumables and there is one sensor cassette and one solutions pack left, but both have expired. The way they mark them is with a "use-by" date, which is the latest day a cassette or pack can be installed on the analyzer. After this, both are good for 30 days. They make sensor cassettes that run more or less samples, but all of them only last 30 days... I think this is because some of the standards inside may be pure gases or solutions with dissolved gas that are more susceptible to degradation and/or leaking.

In any case, both of those consumables had use-by dates of mid-July, so they may work, but if there are QC problems, I think the manufacturer will just say "I told you so."

In retrospect, this makes this machine quite inconvenient for our use in fish kills because supplies can't just be kept on hand, ready for use. You have to know when you will need the materials in advance, and have them ready before it is to be used, but not too far in advance.

I'm sure Amy knows about the short lives of these supplies, but she may not have known whether we ended up ordering more supplies or not. I'll leave it up to you to decide if we want to order new ones with express delivery and still try to get up there, or see if the EPA office wants to order any.

Christopher Barry
West Virginia Department of Environmental Protection
Environmental Resource Specialist
304 926 0499 ext 1709
christopher.barry@wv.gov

email address

Thomas J. Crist to: Louis Reynolds 09/16/2009 07:34 AM

History: This message has been forwarded.

Hey Lou,

I just want to let you know that my correct email address is teerod@windstream.net. Thanks for any updates and any further information that you can provide.

Tom

call me at 304-234-0244

Louis Reynolds to teerod 09/16/2009 07:44 AM

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Dunkard Creek

Brethauer, Charles to Arway, John, Qualters, Thomas, Svetahor, Emil, Frank Borsuk, 'bradley.c.swiger@wv.gov', 'Lemme, Brian M' , Louis Reynolds, 'teerod@windstream.net', Spear, Richard , Harper, Samuel, Halloran, Kevin, Jones, Jeffrey, Swarm, H. Scott, Cox, Stacy, Dunn, Howard, Flannigan, Zachary , Schwartz, Ronald, Owoc, Abbey, Graham, Rita 09/16/2009 11:30 AM

Sept 14th conductivity readings are about same as Sept 10. Acually WV Fork readings dropped ~20% and downstream readings are ~10% higher than Sept 10th. Could be because PA Fork readings were higher on Sept 14 or we measured the remains of previous WV Fork discharges .
There were lots of dead fish seen yesterday, compared to few on Sept 10.

PA Fork

chloride	5.9 mg/l
TDS	206
bromide	<0.2
sulfate	32
Metals detected	
Mg	7 mg/l
Mn	72 ug/l
Al	311 ug/l
Ba	66 ug/l
Fe	534 ug/l
Na	23 mg/l

WV Fork

chloride	4255 mg/l
TDS	18,856
bromide	27 mg/l
sulfate	7867
Metals detected	
Zn	12 ug/l
Mg	313 mg/l
Mn	606 ug/l
Ba	33 ug/l
Fe	480 ug/l
Na	5480 mg/l

Dunkard Cr east of Brave near Cerro plant

chloride	840 mg/l
TDS	3938
bromide	5
sulfate	1622
Metals detected	
Mg	67 mg/l
Mn	455 ug/l
Ba	90 ug/l
Fe	242 ug/l

Na 1210 mg/l

Dunkard Cr east of Mt Morris Near Bald Hill Church Road , just upstream of Shannopin discharge

chloride 152 mg/l
TDS 1008
bromide 0.9
sulfate 406
Metals detected
Zn 10 ug/l
Mg 21 mg/l
Mn 191 ug/l
Al 369 ug/l
Ba 109 ug/l
Fe 573 ug/l
Na 261 mg/l

FW: Dunkard Creek

Brethauer, Charles

To: Arway, John, Qualters, Thomas, Svetahor, Emil, 'borsuk.frank@epamail.epa.gov', 'bradley.c.swiger@wv.gov', 'reynolds.louis@epa.gov', 'teerod@windstream.net', Spear, Richard , Harper, Samuel, Halloran, Kevin, Swarm, H. Scott, Cox, Stacy, Dunn, Howard, Flannigan, Zachary, Schwartz, Ronald , Owoc, Abbey, Graham, Rita , Jones, Jeffrey

09/16/2009 12:03 PM

History: This message has been forwarded.

Forgot to attach these field readings from Sept 10 & 15th.

-----Original Message-----
From: Brethauer, Charles
Sent: Wednesday, September 16, 2009 11:27 AM
To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'bradley.c.swiger@wv.gov'; 'Lemme, Brian M'; 'reynolds.louis@epa.gov'; 'teerod@windstream.net'; Spear, Richard; Harper, Samuel; Halloran, Kevin; Jones, Jeffrey; Swarm, H. Scott; Cox, Stacy; Dunn, Howard; Flannigan, Zachary; Schwartz, Ronald; Owoc, Abbey; Graham, Rita
Subject: Dunkard Creek

Sept 14th conductivity readings are about same as Sept 10. Acually WV Fork readings dropped ~20% and downstream readings are ~10% higher than Sept 10th. Could be because PA Fork readings were higher on Sept 14 or we measured the remains of previous WV Fork discharges .
There were lots of dead fish seen yesterday, compared to few on Sept 10.

PA Fork

chloride 5.9 mg/l
TDS 206
bromide <0.2
sulfate 32
Metals detected
Mg 7 mg/l
Mn 72 ug/l
Al 311 ug/l
Ba 66 ug/l
Fe 534 ug/l
Na 23 mg/l

WV Fork

chloride 4255 mg/l
TDS 18,856
bromide 27 mg/l
sulfate 7867
Metals detected
Zn 12 ug/l
Mg 313 mg/l

Mn 606 ug/l
Ba 33 ug/l
Fe 480 ug/l
Na 5480 mg/l

Dunkard Cr east of Brave near Cerro plant

chloride 840 mg/l
TDS 3938
bromide 5
sulfate 1622
Metals detected
Mg 67 mg/l
Mn 455 ug/l
Ba 90 ug/l
Fe 242 ug/l
Na 1210 mg/l

Dunkard Cr east of Mt Morris Near Bald Hill Church Road , just upstream of Shannopin discharge

chloride 152 mg/l
TDS 1008
bromide 0.9
sulfate 406
Metals detected
Zn 10 ug/l
Mg 21 mg/l
Mn 191 ug/l
Al 369 ug/l
Ba 109 ug/l
Fe 573 ug/l
Na 261 mg/l

Dunkard Creek 9-10.doc Dunkard Creek 9-15.doc

Fw: Dunkard Creek

Louis Reynolds to john.c.wirts, Campbell, Patrick V, Patrick V, FrankJernejcic@wvdnr.gov, Zeto, Michael, A 09/16/2009 03:07 PM

from PADEP

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/16/2009 03:02 PM -----

From: "Brethauer, Charles" <cbrethauer@state.pa.us>
To: "Arway, John" <jarway@state.pa.us>, "Qualters, Thomas" <tqualters@state.pa.us>, "Svetahor, Emil" <esvetahor@state.pa.us>, "'borsuk.frank@epamail.epa.gov'" <'borsuk.frank@epamail.epa.gov'>, "'bradley.c.swiger@wv.gov'" <'bradley.c.swiger@wv.gov'>, "'reynolds.louis@epa.gov'" <'reynolds.louis@epa.gov'>, "'teerod@windstream.net'" <'teerod@windstream.net'>, "Spear, Richard" <rspear@state.pa.us>, "Harper, Samuel" <saharper@state.pa.us>, "Halloran, Kevin" <khalloran@state.pa.us>, "Swarm, H. Scott" <hswarm@state.pa.us>, "Cox, Stacy" <stcox@state.pa.us>, "Dunn, Howard" <hdunn@state.pa.us>, "Flannigan, Zachary" <zflannigan@state.pa.us>, "Schwartz, Ronald" <roschwartz@state.pa.us>, "Owoc, Abbey" <aowoc@state.pa.us>, "Graham, Rita" <rigraham@state.pa.us>, "Jones, Jeffrey" <jefjones@state.pa.us>
Date: 09/16/2009 12:03 PM
Subject: FW: Dunkard Creek

Forgot to attach these field readings from Sept 10 & 15th.

-----Original Message-----
From: Brethauer, Charles
Sent: Wednesday, September 16, 2009 11:27 AM
To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'bradley.c.swiger@wv.gov'; 'Lemme, Brian M'; 'reynolds.louis@epa.gov'; 'teerod@windstream.net'; Spear, Richard; Harper, Samuel; Halloran, Kevin; Jones, Jeffrey; Swarm, H. Scott; Cox, Stacy; Dunn, Howard; Flannigan, Zachary; Schwartz, Ronald; Owoc, Abbey; Graham, Rita
Subject: Dunkard Creek

Sept 14th conductivity readings are about same as Sept 10. Acually WV Fork readings dropped ~20% and downstream readings are ~10% higher than Sept 10th. Could be because PA Fork readings were higher on Sept 14 or we measured the remains of previous WV Fork discharges .
There were lots of dead fish seen yesterday, compared to few on Sept 10.

PA Fork

chloride 5.9 mg/l
TDS 206
bromide <0.2
sulfate 32

Metals detected
Mg 7 mg/l
Mn 72 ug/l
Al 311 ug/l
Ba 66 ug/l
Fe 534 ug/l
Na 23 mg/l

WV Fork
chloride 4255 mg/l
TDS 18,856
bromide 27 mg/l
sulfate 7867
Metals detected
Zn 12 ug/l
Mg 313 mg/l
Mn 606 ug/l
Ba 33 ug/l
Fe 480 ug/l
Na 5480 mg/l

Dunkard Cr east of Brave near Cerro plant
chloride 840 mg/l
TDS 3938
bromide 5
sulfate 1622
Metals detected
Mg 67 mg/l
Mn 455 ug/l
Ba 90 ug/l
Fe 242 ug/l
Na 1210 mg/l

Dunkard Cr east of Mt Morris Near Bald Hill Church Road, just upstream of Shannopin discharge
chloride 152 mg/l
TDS 1008
bromide 0.9
sulfate 406
Metals detected
Zn 10 ug/l
Mg 21 mg/l
Mn 191 ug/l
Al 369 ug/l
Ba 109 ug/l
Fe 573 ug/l
Na 261 mg/l

Dunkard Creek 9-10.doc Dunkard Creek 9-15.doc

Fw: Preliminary Chloride and Sulfate Results for Kill on Dunkard Creek

Louis Reynolds to John Wirts 09/16/2009 03:17 PM

This, from Iowa.

We have been exceeding chloride chronic values for awhile.

cissue.pdf

The sample of interest to me is at D4, which is just upstream of Miracle Run, at a time when the fish were all stacked up at the mouth.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/16/2009 03:11 PM -----

From:	Ron Altman/ESC/R3/USEPA/US
To:	Louis Reynolds/R3/USEPA/US@EPA
Cc:	Kevin Martin/ESC/R3/USEPA/US@EPA, Cynthia Caporale/ESC/R3/USEPA/US@EPA
Date:	09/16/2009 03:01 PM
Subject:	Preliminary Chloride and Sulfate Results for Kill on Dunkard Creek

Lou,

I just finished running the Fish Kill sample on Dunkard. The preliminary results are listed below in the table. After the data has been processed and peer reviewed by another analyst, the final data should not changed very much. Samples from station No. D8 and D9 have significant concentration of chloride and sulfate which may have contributed to the fish kill. I expect to finish the total phosphorus results early next week. Please contact me if you need any more information or have any questions.

Sample No.	Station No.	Chloride Result mg/L	Sulfate Result mg/L

0909016-01	D4	447	1360
0909016-02	D8	3740	6730
0909016-03	D9	6120	10800
0909016-04	D10	444	1070

Ron Altman
Chemist
ASQAB
Phone: (410)-305-2679
Fax: (410)-305-3093

Fw: Preliminary Chloride and Sulfate Results for Kill on Dunkard Creek

Louis Reynolds to john.c.wirts 09/16/2009 03:18 PM

This, from Iowa.

We have been exceeding chloride chronic values for awhile.

cissue.pdf

The sample of interest to me is at D4, which is just upstream of Miracle Run, at a time when the fish were all stacked up at the mouth.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/16/2009 03:11 PM -----

From:	Ron Altman/ESC/R3/USEPA/US
To:	Louis Reynolds/R3/USEPA/US@EPA
Cc:	Kevin Martin/ESC/R3/USEPA/US@EPA, Cynthia Caporale/ESC/R3/USEPA/US@EPA
Date:	09/16/2009 03:01 PM
Subject:	Preliminary Chloride and Sulfate Results for Kill on Dunkard Creek

Lou,

I just finished running the Fish Kill sample on Dunkard. The preliminary results are listed below in the table. After the data has been processed and peer reviewed by another analyst, the final data should not changed very much. Samples from station No. D8 and D9 have significant concentration of chloride and sulfate which may have contributed to the fish kill. I expect to finish the total phosphorus results early next week. Please contact me if you need any more information or have any questions.

Sample No.	Station No.	Chloride Result	Sulfate Result

		mg/L	mg/L
0909016-01	D4	447	1360
0909016-02	D8	3740	6730
0909016-03	D9	6120	10800
0909016-04	D10	444	1070

Ron Altman
Chemist
ASQAB
Phone: (410)-305-2679
Fax: (410)-305-3093

RE: Dunkard Creek

Frank Jernejcic to Louis Reynolds 09/16/2009 08:02 PM

Lou: thanks for the data. Janet Clayton found dead fish this afternoon at Wana. Very confusing. We will investigate in the morning. Frank.

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Wed 9/16/2009 3:07 PM
To: john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Patrick V; Patrick V; Frank Jernejcic; Zeto, Michael A
Subject: Fw: Dunkard Creek

from PADEP

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

---- Forwarded by Louis Reynolds/R3/USEPA/US on 09/16/2009 03:02 PM ----

From: "Brethauer, Charles" <cbrethauer@state.pa.us>

To: "Arway, John" <jarway@state.pa.us>, "Qualters, Thomas" <tqualters@state.pa.us>, "Svetahor, Emil" <esvetahor@state.pa.us>, "'borsuk.frank@epamail.epa.gov'" <'borsuk.frank@epamail.epa.gov'>, "'bradley.c.swiger@wv.gov'" <'bradley.c.swiger@wv.gov'>, "'reynolds.louis@epa.gov'" <'reynolds.louis@epa.gov'>, "'teerod@windstream.net'" <'teerod@windstream.net'>, "Spear, Richard" <rspear@state.pa.us>, "Harper, Samuel" <saharper@state.pa.us>, "Halloran, Kevin" <khalloran@state.pa.us>, "Swarm, H. Scott" <hswarm@state.pa.us>, "Cox, Stacy" <stcox@state.pa.us>, "Dunn, Howard" <hdunn@state.pa.us>, "Flannigan, Zachary" <zflannigan@state.pa.us>, "Schwartz, Ronald" <roschwartz@state.pa.us>, "Owoc, Abbey" <aowoc@state.pa.us>, "Graham, Rita" <rigraham@state.pa.us>, "Jones, Jeffrey" <jefjones@state.pa.us>

Date: 09/16/2009 12:03 PM

Subject: FW: Dunkard Creek

Forgot to attach these field readings from Sept 10 & 15th.

-----Original Message-----

From: Brethauer, Charles

Sent: Wednesday, September 16, 2009 11:27 AM

To: Arway, John; Qualters, Thomas; Svetahor, Emil; 'borsuk.frank@epamail.epa.gov'; 'bradley.c.swiger@wv.gov'; 'Lemme, Brian M'; 'reynolds.louis@epa.gov'; 'teerod@windstream.net'; Spear, Richard; Harper, Samuel; Halloran, Kevin; Jones, Jeffrey; Swarm, H. Scott; Cox, Stacy; Dunn, Howard; Flannigan, Zachary; Schwartz, Ronald; Owoc, Abbey; Graham, Rita

Subject: Dunkard Creek

Sept 14th conductivity readings are about same as Sept 10. Acually WV Fork readings dropped ~20% and downstream readings are ~10% higher than Sept 10th. Could be because PA Fork readings were higher on Sept 14 or we measured the remains of previous WV Fork discharges .
There were lots of dead fish seen yesterday, compared to few on Sept 10.

PA Fork

chloride 5.9 mg/l
TDS 206
bromide <0.2
sulfate 32
Metals detected
Mg 7 mg/l
Mn 72 ug/l
Al 311 ug/l
Ba 66 ug/l
Fe 534 ug/l
Na 23 mg/l

WV Fork

chloride 4255 mg/l
TDS 18,856
bromide 27 mg/l
sulfate 7867
Metals detected
Zn 12 ug/l
Mg 313 mg/l
Mn 606 ug/l
Ba 33 ug/l
Fe 480 ug/l
Na 5480 mg/l

Dunkard Cr east of Brave near Cerro plant

chloride 840 mg/l
TDS 3938
bromide 5
sulfate 1622
Metals detected
Mg 67 mg/l
Mn 455 ug/l
Ba 90 ug/l
Fe 242 ug/l
Na 1210 mg/l

Dunkard Cr east of Mt Morris Near Bald Hill Church Road , just upstream of Shannopin discharge

chloride 152 mg/l
TDS 1008
bromide 0.9
sulfate 406
Metals detected
Zn 10 ug/l
Mg 21 mg/l
Mn 191 ug/l
Al 369 ug/l
Ba 109 ug/l
Fe 573 ug/l
Na 261 mg/l

Out of Office: draft lab results from 9/9 sampling

Brethauer, Charles to Louis Reynolds 09/17/2009 04:20 PM

I'll be out of the office until Friday , September 16.

RE: draft lab results from 9/9 sampling

Arway, John to Louis Reynolds, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Zeto, Michael A, teerod@windstream.net, Brethauer, Charles , Spear, Richard, frankjernejcic@wvdnr.gov, pziemkie@wvu.edu, Swiger, Bradley C, Arway, John 09/18/2009 09:55 AM

Cc: John Forren, "Svetahor, Emil", "Urban, Chris", "Shepler, Laurie", "Kamerzel, Thomas" , "Young, Leroy", "Regenstein, Ellen"

History: This message has been forwarded.

Lou,
Thanks for providing this dataset. Obviously these values are not typical for treated mine drainage. Chlorides of 6120 mg/l, Na of 5780 mg/l, Mg of 38 mg/l, and hardness of 3000 mg/l is approaching sea water chemistries (http://www.indiana.edu/%7Eg131/chem4.gif) which are 10,800 mg/l Na and 19,400 mg/l Cl at 35% salinity.

Obviously these numbers show violations of Pennsylvania's instream aquatic life protection value of 1500 milliosmoles/kg (equates to 1500 mg/l NaCl but should also include the other ions in solution)which is validated by acute mortalities of fish, mussels and other aquatic life downstream. Although it is obvious that the outfall numbers are abnormal for freshwater or even treated AMD , there is obviously also something occurring upstream where Na and Cl levels are also elevated. Is there any progress in identifying the cause (now that we know one of the sources) of this in WV and what is the chance we can get this stopped? Anyone investigate the potential to turn off the mine pumps and address this through NPDES? I realize that it depends upon the freeboard in the minepool and how that relates to impacting active mining but is someone looking into this option? We are still seeing fish and mussels die in PA and it is near reaching the Mon. We can only hope that the Mon has enough dilution to mediate the effects of Dunkard Creek flows but we won't know for sure until it happens.

Can someone advise about any possible remedies-- even short-term? It is quite clear that the values presented from these sample results are violating PA WQ criteria and causing extensive biological damages which we continue to assess. It would be helpful to know if anyone is pursuing a remedy now that we have a source verified.

Thanks for listening.

><(*John* {{(°>

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, September 17, 2009 4:21 PM
To: john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Patrick V; Patrick V; Zeto, Michael A; teerod@windstream.net; John Arway; Arway, John; Brethauer, Charles; Spear, Richard; frankjernejcic@wvdnr.gov; pziemkie@wvu.edu; Swiger, Bradley C
Cc: Forren.John@epamail.epa.gov
Subject: draft lab results from 9/9 sampling

We have some of the labs back (unvalidated) from our 9/9 sampling and they are included in this

spreadsheet. Someone (it can be me - or anyone else) needs to take a spatial/temporal look at this data. I am missing a few data points to do this properly (it'd be nice to see Brad's crew's conductivity data from the first week of September (then we need to get it on a map).

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Dunkard Creek update

Brethauer, Charles to: Arway, John, Qualters, Thomas, Svetahor, Emil, 'borsuk.frank@epamail.epa.gov', 'bradley.c.swiger@wv.gov', 'reynolds.louis@epa.gov', 'teerod@windstream.net', Spear, Richard, Harper, Samuel, Halloran, Kevin, Swarm, H. Scott, Cox, Stacy, Dunn, Howard, Flannigan, Zachary, Schwartz, Ronald, Owoc, Abbey, Graham, Rita, Jones, Jeffrey, Mcgarvey, Martina, Herschlag, Bruce, Yantko, Vincent, Prentice, Gregory, Humphreys, Helen, Gresh, Katherine, Milcic, Kareen — 09/18/2009 04:51 PM

History: This message has been forwarded.

Learned from WV DEP this afternoon that Consol stopped pumping Blacksville #2 Outfall 005 yesterday morning. The water is being re-routed within the mine. The discharge was expected to stop yesterday afternoon. This discharge consists of mine water that is treated for pH & metals then settled. PA DEP measured that discharge late yesterday morning at approx 250,000-300,000 gpd. Field measurements are in the attachment.

During my first look at Dunkard yesterday, the low flows & miserable appearance of the water (tea color, turbid, greenish/brownish color) were striking.

PA DEP will be sampling & measuring stream flows on Monday.

After noting high magnesium (313 mg/l in WV Fork, 67 mg/l at Brave) high chlorides (4255 mg/l in WV Fork, 840 at Brave) some PA DEP staff provided the following information on WQ standards :

Magnesium
I wasn't able to find enough toxicity data for magnesium as an element, but I was able to calculate an instream target or guidance value for magnesium chloride. From the list of parameters below I think it is possible that this compound may be present in these waters. The instream aquatic life acute guidance value for magnesium chloride is 98 mg/L. There was insufficient data to calculate a chronic value. Please note that this is an instream target. It was calculated using data in the EPA Ecotox database. This instream target was calculated using a Tier II approach, which allows for calculating values when the proper amount of aquatic families are not available.

Chloride:
The chloride value could be a problem. The national recommended aquatic life criteria for chlorides is 860 mg/L acute and 230 mg/L chronic. I also think the sulfate values are high but EPA's aquatic life web-site has been down all day, which is the site I use to calculate criteria.

Charlie Brethauer
[attachment "Dunkard Creek 9-17.doc" deleted by Louis Reynolds/R3/USEPA/US]

FW: algae info

Campbell, Patrick V to Louis Reynolds 09/20/2009 09:44 AM

some things fit, some don't. thanks for the field work today!

http://www.tpwd.state.tx.us/landwater/water/environconcerns/hab/ga/faq.phtml

From: Zeto, Michael A
Sent: Sat 9/19/2009 6:44 PM
To: Campbell, Patrick V
Cc: Swiger, Bradley C
Subject: RE: algae info

I read thru this. I have not heard any mention of foam on dunkard. I also looked at the pics of the gills on the fish. Should be very evident. Need to see what frank J has to say about appearance of fish gills. What have you seen??
Brad and staff will be collecting several gallons of water tomorrow and putting on ice....

From: Campbell, Patrick V
Sent: Sat 9/19/2009 11:15 AM
To: Zeto, Michael A; Bailey, Jeffrey E; Wirts, John C; Lowman, Ben M
Subject: FW: algae info

From: Mandirola, Scott G
Sent: Friday, September 18, 2009 4:57 PM
To: Campbell, Patrick V
Subject: Fw: algae info

Message sent from my Blackberry!

From: Mindy Y Armstead
To: Mandirola, Scott G
Sent: Fri Sep 18 15:48:58 2009
Subject: algae info
Scott,

Check out these sites. The first one has a section "what are the signs of a golden algae bloom" which is very descriptive of what we are seeing. There are several algae that produce toxins like this, some freshwater and some marine. I'll talk to you soon.

Mindy

http://www.azgfd.gov/temp/golden_alga_faqs.shtml#5

http://www.cees.iupui.edu/Research/Water_Resources/CIWRP/Algae_Information/2009-07_WhiteRiver_Diatoms.htm

http://www.tpwd.state.tx.us/landwater/water/environconcerns/hab/media/report.pdf

Mindy Yeager Armstead, Ph.D.
Senior Scientist
Potesta & Associates, Inc.
7012 MacCorkle Ave. SE
Charleston, West Virginia 25304
(304) 342- 1400 - Phone
(304) 343-9031 - Fax

call steve at Wisconsin State Lab

Louis Reynolds to patrick.v.campbell 09/21/2009 10:09 AM

Steve Geis:

Business: sgeis@mail.slh.wisc.edu

Phone Numbers

Business: 608-224-6269

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

FW: Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Campbell, Patrick V to Louis Reynolds 09/21/2009 10:59 AM

From: Greathouse.Jessica@epamail.epa.gov [mailto:Greathouse.Jessica@epamail.epa.gov]
Sent: Monday, September 21, 2009 9:32 AM
To: Mandirola, Scott G; Campbell, Patrick V
Subject: Fw: Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Jessica H. Greathouse
State and Congressional Liaison
U.S. Environmental Protection Agency
(304) 234-0275
(304) 224-3181 cell

----- Forwarded by Jessica Greathouse/R3/USEPA/US on 09/21/2009 09:32 AM -----

Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Roy Seneca to Bonnie Smith, David Stemberg, capacasa.jon, Stefania Shamet, Terri-A White, Jessica Greathouse, carlson.eric 09/21/2009 08:38 AM

Sudden death of ecosystem ravages long creek
'Everything is being killed': 161 aquatic species have died along Dunkard Creek
Sunday, September 20, 2009
By Don Hopey, Pittsburgh Post-Gazette
Bob Donaldson/Post-Gazette

Just 20 days ago, Dunkard Creek, which meanders lazily back and forth across the border of Pennsylvania and West Virginia, was one of the most ecologically diverse streams in both states, containing freshwater mussels, mudpuppy salamanders and a host of fish species from minnows to 3-foot-long muskies.

Generations of families picnicked along its sycamore-lined banks and swam in its warm water. Fishermen plied its green, slow-moving pools with lures and bait in hopes of catching lunker bass.

But today, the 38-mile creek is all but dead, its 161 species of fish, mussels, salamanders, crayfish and

aquatic insects killed by mysterious pollutants coming from sources state and federal agencies have yet to pinpoint despite aggressive field work.

"We've just been decimated down here. Everything is being killed almost from the headwaters of the creek to where it flows into the Monongahela River," said Betty Wiley, president of the Dunkard Creek Watershed Association. "It's such a tragedy for the creek. An ecosystem has been destroyed."

And fish continue to die as the initial mass of pollution moves down the creek, which flows into the Monongahela just down river from Point Marion, Fayette County, and as additional pollution is discharged from its mysterious source.

Environmental agencies are treating the creek as a crime scene. Longtime environmental and fisheries officials say the fish kill, which preliminary counts have put at more than 10,000, is one of the worst they've seen.

"A lot of supposition and science needs to be pieced together, but this is bad," said John Arway, chief of the Pennsylvania Fish and Boat Commission's environmental services division. "The fish that couldn't escape up side tributaries were killed."

The Pennsylvania Department of Environmental Protection on Friday said more than 30 miles of the stream have been damaged by the discharge. It has killed 18 species of fish and at least 16 species of freshwater mussels, including the salamander mussel and the snuffbox mussel -- both candidates for federal listings as endangered species.

"DEP will continue to monitor water quality so that when the responsible party is determined by West Virginia and [the U.S. Environmental Protection Agency] we are positioned to take appropriate enforcement action," said Ronald Schwartz, DEP acting regional director.

"This is the worst fish kill I've experienced in 21 years in West Virginia," said Paul Ziemkiewicz, director of the National Research Center for Coal and Energy's Water Research Institute at West Virginia University.

Environmental agencies in West Virginia and Pennsylvania, the Pennsylvania Fish and Boat Commission, the West Virginia Department of Natural Resources and the EPA each have had inspectors on the creek in recent weeks, testing water samples, collecting dead fish and observing discharges into the water.

An early and continuing focus of the investigation has been discharges from a mine water treatment facility located at Consol Energy's Blacksville No. 2 mine in West Virginia.

But state and federal investigators are confounded because chemical analysis shows the creek water at the treatment facility site contains extremely high total dissolved solids, or TDS, and chlorides -- properties found in wastewater from Marcellus Shale gas well drilling operations but not mine water. Total dissolved solids may include metals, salts and other elements.

Marcellus Shale well drilling water contains about 100 chemicals added to reduce friction, eliminate algae growth and perform other functions when water is pumped underground under pressure to fracture the shale and release natural gas.

Up to 4 million gallons are used for each Marcellus Shale well. Disposal of wastewater from the wells has caused problems throughout Pennsylvania, including TDS readings that exceeded federal safe drinking water standards in the Monongahela River last winter and this year.

On Thursday, investigators found dead fish for the first time about a mile and a half up the creek above the treatment plant discharge.

"Our hypothesis was that it's coming out of the Blacksville No. 2 mine, but the finding of dead fish upstream from the Blacksville discharge indicates the sole cause cannot be Blacksville," said West Virginia DEP spokeswoman Kathy Cosco.

The state agencies now are looking at the possibility that someone has illegally dumped drilling wastewater into the creek to avoid the expense of complying with laws governing its disposal. The water must be treated in Pennsylvania or injected deep underground in West Virginia.

The West Virginia DEP on Friday sent a helicopter to fly over the creek to look for unauthorized discharges and places where tanker trucks could pull up and dump drilling wastewater.

"The elevated levels of TDS and chlorides in the creek indicates oil and gas drilling wastewater," Ms. Cosco said. "We are following up on every lead that people give us. If they saw a truck pull up to the creek and put a hose in, we want to know about it. We want the name on the truck, a license plate number, anything we can use to identify it."

Unlike Pennsylvania, the West Virginia DEP doesn't permit water or sewage treatment facilities in the state to accept or discharge Marcellus well wastewater, Ms. Cosco said.

Consol spokesman Tom Hoffman said the company's facility does not accept or treat gas well drilling wastewater. The company's field teams also are trying to figure out what's happening.

"Neither they nor we have been able to sort out what's going on," he said. "It's confounding because we're seeing fish kills in the vicinity of the treatment plant where you might expect Blacksville No. 2 is at fault, but also further downstream than you would expect was our fault, and recently upstream from the Blacksville 2 discharge.

"So Blacksville is a possible contributor, but it's not clear if it's the lone cause."

Mr. Hoffman said the mining company, at the suggestion of the West Virginia DEP, agreed on Thursday to shut down plant operations to assess the effect on the creek.

Water samples taken from the creek at the Blacksville mine treatment facility show extremely high levels of total dissolved solids, in the 25,000- to 35,000-milligrams-per-liter range, or about the same as in seawater. The federal safe drinking water standard is 500 milligrams per liter.

The fish started turning belly up on Sept. 1. By Sept. 4, dead fish were lining the deep pool below the Lower Brave Dam near the Greene County town of Brave.

"It's disgusting to see that much life wiped out," said Ed Presley, who owns property along the creek at the Lower Brave Dam."To see the quality and beauty of that stream and then to see what happened to it, well, it really tears at you. I'm not really a tree-hugger but to see natural things destroyed and wasted like this, it's just dead wrong."

"We're very concerned about this going on and this clearly is not an easy thing to find the source of," said EPA spokeswoman Bonnie Smith. "There are a lot of factors, ... but this is a tough one."

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

Quinlin is gone to a teaching job

Wirts, John C to: Campbell, Patrick V, Louis Reynolds 09/21/2009 11:34 AM

Suzanna Decelles is there now – she said she could probably ID the algae, but she suggested Mark VanderBorgh in NC. He's an algae person that deals with fish kills regularly.
I'll call him and let you know what I find..

RE: Quinlin is gone to a teaching job

Campbell, Patrick V to Wirts, John C 09/21/2009 12:30 PM

Cc: Louis Reynolds

Great!

From: Wirts, John C
Sent: Monday, September 21, 2009 11:32 AM
To: Campbell, Patrick V; 'reynolds.louis@epa.gov'
Subject: Quinlin is gone to a teaching job.

Suzanna Decelles is there now – she said she could probably ID the algae, but she suggested Mark VanderBorgh in NC. He's an algae person that deals with fish kills regularly.
I'll call him and let you know what I find..

FW: Dunkard Ck. Update

Campbell, Patrick V to Wirts, John C, Montali, David A, Louis Reynolds 09/21/2009 12:31 PM

History: This message has been forwarded.

fyi

From: Carico, Charles M
Sent: Monday, September 21, 2009 8:57 AM
To: Campbell, Patrick V
Subject: FW: Dunkard Ck. Update

Pat,
I sent this last night to Bill Simmons before I read your e-mail from Mindy. Sounds like things may be coming together.
Also, can you confirm that samples were taken Sunday by the EPA person?
Thanks,
Mike C.

From: Carico, Charles M
Sent: Monday, September 21, 2009 1:30 AM
To: Simmons, William E
Cc: Given, Dwight M; Henry, Roger K; Roddy, David C
Subject: Dunkard Ck. Update

Bill,
On 9-18-09 I flew Dunkard Ck. from its mouth up to Consol's St. Leo AMD treatment plant with Brad Swiger and Stan Wolfe (Water and Waste Management); a stretch about 35 miles. Once we entered WV, the distance up to St. Leo is about 25 miles. We followed a discoloration in the stream which began a few miles from the mouth (in PA), upstream to a Beaver Pond located .75 miles downstream of the Consol St. Leo outlet (#016). Within this half dried-up Beaver Pond, there is a 'line' above which there are many live minnows/fish. Below this 'line' within the Beaver Dam, there are no fish and the 'rusty-like' color begins to cloud the water. Attached are a few photos of this area and other views of Dunkard Ck.

Also, on 9-18-09, I enlisted the help of the following 7 DEP employees to survey the entire WV portion of Dunkard Ck.:
Roger Henry, Mike Nunan, Terry Washburn, Dave Roddy, Mike Kromer, Steve Ball and Sheila Vukovich (AML). Each was assigned a section of stream to collect observations on stream conditions, live or dead fish, condition of any tributaries, and take photos and collect water samples as deemed appropriate. Dead fish were observed the entire 25 mile section and appear to be associated with the discoloration that varied from 'rusty' to greenish-gray in color. All tributaries were clear and usually had live fish congregated in the mouth of each tributary. The upstream-most dead fish was found 8 miles above the Consol Blacksville #2 outlet #005 (about 3000-ft. downstream of the 'Beaver Pond'). Between the beaver pond and the first dead fish, no fish alive or dead were found. Six water samples were collected: 1) at the St. Leo outlet 016, 2) below the beaver pond, 3) above the Wana Rt. 7 bridge, 4) at Blacksville

2's outlet #005, 5) at the State Line, and 6) in PA below Mt. Morris at what appeared to be the downstream extent of the discoloration. These will be analyzed according to the list of parameters suggested by John Wirts. Also, flows were taken US and DS of outlet 005 and 016.

We became concerned that some form of algae or similar growth (blue-green algae) may be the source of some kind of toxin. Background reading indicate that toxins are sometimes produced by some algae. Also, saline environments are sometimes involved with HAB (Harmful Algae Blooms). Toxins are suspected since the DO measurements (often low in algae blooms) do not appear to be low enough to cause this fish kill. Chlorides are elevated in the St. Leo discharge.

On 9-19-09, in an attempt to identify the discoloration (possibly an algae, cyanobacteria, or dinoflagellates), I discussed the matter with Jeff Skousen who directed me to Dr. Allen Sexstone, a micro-biologist at WVU. Dr. Sexstone then accompanied me on 9-19-09 to St. Leo and we proceeded to collect water samples from 10 stations along the Dunkard from St. Leo, Beaver Dam, etc. down to the state line. He advised he will examine the samples and will probably have some information by Wed., 9-23-09.
I also informed Pat Campbell regarding the same on 9-19-09 and, subsequently, he arranged for an EPA biologist to also collect samples from the beaver pond and points downstream on Sunday, 9-20-09. If these results prove negative, we can at least eliminate this line of thinking.

At this point, we are waiting for results of the many samples before we can draw any conclusions. If the St. Leo discharge is suspected as a partial cause, we may consider turning off this flow to assess the impact. Consol stopped pumping to the 005 outlet at Blacksville 2 on 9-17-09. I will check with Consol about the possibility of turning off the St. Leo pumps.

Mike C.[attachment "P1010049.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010005.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010013.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010018.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010020.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010035.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "P1010046.JPG" deleted by Louis Reynolds/R3/USEPA/US]

FW: From algae sop

Geis, Steve to Louis Reynolds 09/21/2009 12:38 PM

Here's the lugols recipe.

-----Original Message-----
From: Hemming, Jocelyn C.
Sent: Monday, September 21, 2009 9:54 AM
To: Geis, Steve
Subject: From algae sop

Reagents and Consumables

A. Lugol's solution, 5% Iodine and 10% Potassium Iodide
B. Glacial acetic acid
C. Glutaraldehyde, 25% in water
D. Vacuum grease
E. Type I water
F. KimWipes
G. 70% Ethanol
H. Novus® 1 Plastic Clean & Shine

Procedure

A. Sample Preservation

1) Immediately after collection or receipt at the lab, sample must be preserved using Lugol's solution or glutaraldehyde.

(a) Lugol's solution containing 10% glacial acetic acid: Add at a rate of 1 mL Lugol's-acetic acid to every 100 mL of sample (Lugol's solution expires 6 months after preparation). Mix well.

(b) Glutaraldehyde (25% in water): Add at a rate of 1 mL glutaraldehyde to every 100 mL of sample. Mix well. Note: glutaraldehyde can damage mucus membranes, so must work with it in a well-ventilated area or under a fume hood.

2) Once preserved, sample may be stored at room temperature, preferably in the dark, or stored at 4°C in the dark.

Jocelyn Hemming, PhD

Associate Scientist, Research Environmental Toxicologist
Environmental Toxicology
Wisconsin State Lab of Hygiene
2601 Agriculture Drive
Madison WI 53718

phone 608.224.6230
fax 608.224.6267
hemminjc@mail.slh.wisc.edu

FW: photos

Campbell, Patrick V to Louis Reynolds 09/21/2009 12:38 PM

History: This message has been replied to.

From: Swiger, Bradley C
Sent: Monday, September 21, 2009 10:51 AM
To: Zeto, Michael A; Campbell, Patrick V
Cc: Foster, Minter C; Powroznik, Kirk A
Subject: photos

Observation report for Sept 18 & 19, 2009

Mine outlet 005 continues to discharge although substantially less at apx 18000-20000 gpd.

Algae samples were collected and transferred to Lou Reynolds on 19th. One sample each collected at 005 and wetland.

Here are some photos

4823 – Sept 18. Common surface scum, film, algae; heaviest in downstream area.
4829 – Sept 18. St Leo AMD at headwaters; discharge at the uppermost right hand corner of pond at top of photo
4830 – Sept 18. Wetland below St Leo AMD; stream enters from top of photo (note clarity of stream); sample collected from red pool of water near bottom of photo near dead, standing tree on left
4840 – Sept 18. Lower end of wetland; stream rusty color starts here and proceeds downstream
4844 – Sept 18.View of wetland; stream enters on bottom left; exists at top left
4847 – Sept 18. WV Fork downstream of wetland; note rusty color
4858 – Sept 19. Sample location in wetland at tallest dead snag at center of photo
4860 – Sept 19. Sample from wetland; yellow color becomes fainter as your proceed downstream
4862 – Sept 19. Mouth of Rudolph Run near Pentress; note minnows in clear water and distinct color between Dunkard and Rudolph
4863 – Sept 19. Mouth of Rudolph Run with Dunkard Creek.[attachment "IMG_4823.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4829.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4830.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4840.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4844.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4847.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4858.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4860.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4862.JPG" deleted by Louis

Reynolds/R3/USEPA/US] [attachment "IMG_4863.JPG" deleted by Louis Reynolds/R3/USEPA/US]

RE: FW: photos

Campbell, Patrick V to Louis Reynolds 09/21/2009 01:42 PM

History: This message has been forwarded.

WV0040711 DMR attached. Great minds think alike. I was just pulling this....

016 is the main outlet.

Dusf9 I think is instream monitoring downstream of the outlet and uusf8 is upstream. Look at the upstream chloride nums. Doesn't make sense at this point???

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, September 21, 2009 12:46 PM
To: Campbell, Patrick V
Subject: Re: FW: photos

Is there a discharge from that mine at st leo , and what is the permit #?

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/21/2009 12:38 PM
Subject: FW: photos

From: Swiger, Bradley C
Sent: Monday, September 21, 2009 10:51 AM

To: Zeto, Michael A; Campbell, Patrick V
Cc: Foster, Minter C; Powroznik, Kirk A
Subject: photos

Observation report for Sept 18 & 19, 2009

Mine outlet 005 continues to discharge although substantially less at apx 18000-20000 gpd.

Algae samples were collected and transferred to Lou Reynolds on 19th. One sample each collected at 005 and wetland.

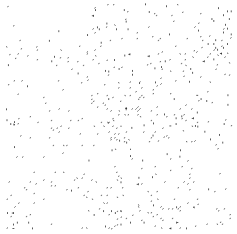
Here are some photos

4823 – Sept 18. Common surface scum, film, algae; heaviest in downstream area.
4829 – Sept 18. St Leo AMD at headwaters; discharge at the uppermost right hand corner of pond at top of photo
4830 – Sept 18. Wetland below St Leo AMD; stream enters from top of photo (note clarity of stream); sample collected from red pool of water near bottom of photo near dead, standing tree on left
4840 – Sept 18. Lower end of wetland; stream rusty color starts here and proceeds downstream
4844 – Sept 18.View of wetland; stream enters on bottom left; exists at top left
4847 – Sept 18. WV Fork downstream of wetland; note rusty color
4858 – Sept 19. Sample location in wetland at tallest dead snag at center of photo
4860 – Sept 19. Sample from wetland; yellow color becomes fainter as your proceed downstream

4862 – Sept 19. Mouth of Rudolph Run near Pentress; note minnows in clear water and distinct color between Dunkard and Rudolph
4863 – Sept 19. Mouth of Rudolph Run with Dunkard Creek.[attachment "IMG_4823.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4829.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4830.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4840.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4844.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4847.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4858.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4860.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4862.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4863.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "stleodmr's.xls" deleted by Louis Reynolds/R3/USEPA/US]

golden algae

Campbell, Patrick V to Louis Reynolds 09/21/2009 02:47 PM



http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_rp_t3200_1203.pdf

FW: Mark Vanderborgh's contact info

Wirts, John C to Louis Reynolds — 09/21/2009 02:50 PM

-----Original Message-----
From: Thoeny.William@epamail.epa.gov [mailto:Thoeny.William@epamail.epa.gov]
Sent: Monday, September 21, 2009 11:12 AM
To: Wirts, John C
Subject: Fw: Mark Vanderborgh's contact info

William T. Thoeny, PhD
Entomologist/Laboratory Manager
Dynamac Corporation
c/o US EPA
26 West Martin Luther King Dr.
Cincinnati, Ohio 45268
513-569-7095
><((((°>`·.,.·´¯`·...,><((((°>,...·´¯`·.,.><((((°>
----- Forwarded by William Thoeny/CI/USEPA/US on 09/21/2009 11:11 AM -----

From: Susannaj Decelles/CI/USEPA/US

To: William Thoeny/CI/USEPA/US@EPA

Date: 09/21/2009 11:10 AM

Subject: Mark Vanderborgh's contact info

Bill--

I'm not sure if Mark has time to ID samples from John W. (Wv); but if they just need a quick ID to see what algae is there and to speculate about what may be causing the fish kills ---he might be able to do that.

If John just needed an ID, they could just collect either a small rock (as small as the palm of your hand), or use a toothbrush (EMAP methods) etc, or contact Mark about specific details on how he would like to collect the sample (how much sample volume, preservatives etc).

Susanna

PS I don't have that much experience with brackish water species (especially algae like dino's that have flagella). Some preservatives work better at preserving flagellated algae etc.

Mark VanderBorgh

Environmental Biologist
Division of Water Quality
Environmental Sciences Section
Physical Address: 4401 Reedy Creek Rd., Raleigh, NC. 27606
Mailing Address: 1621 Mail Service Center, Raleigh, NC. 27699-1621
Email: mark.vanderborgh@ncmail.net
Website: http://www.esb.enr.state.nc.us/
Direct Phone line: (919) 743-8423

WVDEP Dunkard press release

Campbell, Patrick V To: Frank Jernejcic, Bret Preston 09/22/2009 10:52 AM

Fyi - pat

From: Cosco, Kathy
Sent: Tuesday, September 22, 2009 9:57 AM
To: DEP All
Subject:

DEP actively investigating Dunkard Creek fish kill

The West Virginia Department of Environmental Protection and the Division of Natural Resources, along with a number of other agencies, have been actively investigating the cause of a substantial fish kill in Dunkard Creek, in Monongalia County.

Members of the public first reported seeing dead fish in Dunkard Creek and notified the West Virginia DNR on Sept. 1. At that time, staff from a variety of divisions from the WVDEP and WVDNR visited the scene, began taking samples and started looking for a cause.

"This situation is different from past fish kills the agency has responded to," said Michael Zeto, the DEP's Chief of Environmental Enforcement. "Typically, there is a chemical or physical characteristic that points to a single source. Then, we deal with who is responsible from there. However, this fish kill may have several possibilities that could be contributing to the cause."

"We understand the frustration people are feeling, because we feel it, too," said Scott Mandirola, director of the DEP's Division of Water and Waste Management. "That's why we have large number of people working on this and are working with other agencies to try to determine what could be causing it."

The WVDEP is working with the WVDNR, the Pennsylvania Department of Environmental Protection, the Pennsylvania Fish and Boat Commission, the U.S. Environmental Protection Agency and West Virginia University.

Because of heavy mining activity in the area, the industry was an early suspect. In fact, after conferring with the WVDEP, Consol, which operates an active mine in Blacksville, W.Va., agreed to shut off its discharge into Dunkard Creek at its Blacksville No. 2 site. However, at the same time Consol was shutting off its pumps, dead fish were found upstream from its outlet, indicating that the outlet at that site is not the sole cause for the dead fish.

In addition, inspectors checked mine pools from previous mining activity that are often sources of acid mine drainage. However, the water levels in the area are hundreds of feet below stream elevation at this time because the area has not received much rain in recent weeks.

The agencies have also received reports from area residents suspecting tanker trucks of dumping wastewater from oil and gas drilling activities into Dunkard Creek. Various agencies continue to investigate those reports.

"We have found that those trucks that have been reported are withdrawing water from the stream, rather than dumping wastewater," Zeto said.

"People think that West Virginia and Pennsylvania have the same regulations regarding the disposal of oil and gas wastewater, but we do not," Mandirola said. "West Virginia currently has no wastewater treatment plants permitted to accept oil and gas fluid."

On Friday, Sept. 18, staff members from the DEP flew over the area in a helicopter to see if there was anything they could see from the air that they missed on the ground. The staff noted the stream was clouded with a rust color from the Pennsylvania border upstream to a beaver dam in the South Fork of the West Virginia Fork of Dunkard. As a result, additional staff was brought in to take samples along the 25-mile stretch.

In addition, investigators have solicited the assistance of micro-biologists to help determine whether some form of algae or similar growth may be a contributing factor. Toxins are sometimes produced by algae; and saline environments are sometimes involved with harmful algae blooms.

"The bottom line is we are working diligently to determine all potential causes and put a stop to whatever it is that's killing the aquatic life in Dunkard Creek. Given that we are investigating several possibilities, it is taking longer to solve than fish kills normally encountered. This one is different from any that we've had in recent memory," Zeto said.

--30--

Kathy Cosco
Communications Director
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
Office 304-926-0499, ext. 1331
Cell 304-561-8996

Dunkard Creek.doc

FW: Dunkard Ck Fish Kill

Wirts, John C to Louis Reynolds 09/22/2009 12:02 PM

From: Vander Borgh, Mark [mailto:mark.vanderborgh@ncdenr.gov]
Sent: Tuesday, September 22, 2009 11:58 AM
To: Pat Tester
Cc: Meridith Byrd; Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

John, attached are photos of the alga that I believe is Chrysochromulina as distinguished by the short haptophyte flagella and golden color.
I did a quick enumeration on the sample you sent and estimate the cell density around 750,000 to 1,000,000 cells/ml
I am headed back to the lab to check out the samples Louis Reynolds sent.
Would you please forward him this email, I do not have his address.
Please contact me if you have any questions

From: Pat Tester [mailto:Pat.Tester@noaa.gov]
Sent: Tuesday, September 22, 2009 11:05 AM
To: Vander Borgh, Mark
Cc: Meridith Byrd; john.c.wirts@wv.gov
Subject: Re: Dunkard Ck Fish Kill

Hello Mark,
Thank you for your inquiry this morning. This is the "quick" answer. Let me know if you'd like to explore any aspect of this further. I can put you in touch with international experts (yes, they are Swedish). Some of the best information available in the US will come from
Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax
I have not been able to reach her today because she is in Austin but I'll copy her on this email. I suspect she'll have the most up to date information about the management of Chrysochromulina. She has been dealing with Chrysochromulina and Prymnesium in Texas lakes for more than a decade.

I've included several URLs for information but it seems that as late as 2004 the "toxin" had not been characterized. I also noticed that even more recent articles on the "toxicity" used bioassays (brine shrimp) as the measure of toxicity. Luis M. Botana's Seafood and Freshwater Toxins 2000 fails to mention Chrysochromulina or haptophyta.

http://www.jstor.org/stable/4313990 Photo and general ecology

http://www.int-res.com/articles/meps/57/m057p011.pdf
Good discussion on how Chrysochromulina differs from Prymnesium

http://cat.inist.fr/?aModele=afficheN&cpsidt=1997339

Cell density, chemical composition and toxicity of Chrysochromulina polylepis (haptophyta) in relation to different N:P supply ratios

Auteur(s) / Author(s)
JOHANSSON N. [1] ; GRANELI E. [2] ;

Affiliation(s) du ou des auteurs / Author(s) Affiliation(s)
[1] Department of Marine Ecology, Ecology Building, University of Lund, 223 62 Lund, SUEDE
[2] Department of Marine Sciences, University of Kalmar, P.O. Box 905, 391 29 Kalmar, SUEDE

Résumé / Abstract
The influence of different N:P supply ratios on cell accumulation, chemical composition and toxicity of the marine haptophyte Chrysochromulina polylepis was examined in semi-continuous cultures. A non-axenic strain of C. polylepis was exposed to five different N:P supply ratios (N:P = 1:1, 4:1, 16:1, 80:1 and 160:1, by atoms), in order to create a range of N- and P-limited conditions. The toxicity per cell in C. polylepis was determined on four occasions at steady state cell density using the haemolytic activity of the cells expressed as saponin nanoequivalents. Haemolytic activity was demonstrated in all treatments, and increased in the algae when cell growth was nutrient limited (N:P = 1:1, 4:1, 80:1 and 160:1), compared to cells grown under nonlimiting conditions (N:P = 16:1). This occurred regardless of the growth-limiting nutrient (N or P) and became more pronounced as nutrient limitation increased. In P-limited cultures the haemolytic activity per cell increased linearly with the cellular N:P ratio, whereas the N-limited cultures showed an opposite trend. The haemolytic activity per cell showed an inverse relationship with both cellular N and cellular P content. Cells limited by P showed a higher haemolytic activity than cells limited by N. The results suggest that toxicity in C. polylepis is strongly influenced by the physiological state of the algae. This may partially explain the large variability previously observed in the toxicity of C. polylepis blooms. The potential ecological

significance of our findings is also discussed.

Revue / Journal Title
Marine biology **ISSN** 0025-3162 **CODEN** MBIOAJ

Source / Source
1999, vol. 135, n°2, pp. 209-217 (1 p.1/4)

http://www.springerlink.com/content/a736467130261830/
Potential toxicity of the freshwater *Chrysochromulina* species *C. parva* (Prymnesiophyceae)
Abstract A mass development of *Chrysochromulina parva* Lackey — 614 000 cells per ml, associated with fish mortality, is reported from a small Danish lake. None of the analyses performed showed any reason for the fish kill. Even oxygen conditions were favourable. Thus toxins from the *Chrysochromulina* might be responsible for the fish kill. If true, this would be the first record of toxicity in a freshwater *Chrysochromulina* .

Vander Borgh, Mark wrote:
John, from a preliminary scan the algae in the sample you sent is Chrysochromulina, possibly the same alga that has caused problems in Texas. I have taken the liberty to contact Pat Tester (NOAA)(252-728-8792) who is more familiar with brackish/marine toxic algae to see what we can do to confirm the identification and advice on who to contact for further testing.

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Monday, September 21, 2009 11:38 AM
To: mark.vanderborgh@ncmail.net
Subject: Dunkard Ck Fish Kill

Mark,
Here's some recent info on the fish kill. And my contact info:

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

----- Forwarded by Jessica Greathouse/R3/USEPA/US on 09/21/2009 09:32 AM -----

Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Roy Seneca to Bonnie Smith, David Stemberg, capacasa.jon, Stefania Shamet, Terri-A White, : Jessica Greathouse, carlson.eric 09/21/2009 08:38 AM

Sudden death of ecosystem ravages long creek
'Everything is being killed': 161 aquatic species have died along Dunkard Creek
Sunday, September 20, 2009
By Don Hopey, Pittsburgh Post-Gazette
Bob Donaldson/Post-Gazette

Just 20 days ago, Dunkard Creek, which meanders lazily back and forth across the border of Pennsylvania and West Virginia, was one of the most ecologically diverse streams in both states, containing freshwater mussels, mudpuppy salamanders and a host of fish species from minnows to 3-foot-long muskies.

Generations of families picnicked along its sycamore-lined banks and swam in its warm water. Fishermen plied its green, slow-moving pools with lures and bait in hopes of catching lunker bass.

But today, the 38-mile creek is all but dead, its 161 species of fish, mussels, salamanders, crayfish and aquatic insects killed by mysterious pollutants coming from sources state and federal agencies have yet to pinpoint despite aggressive field work.

"We've just been decimated down here. Everything is being killed almost from the headwaters of the creek to where it flows into the Monongahela River," said Betty Wiley, president of the Dunkard Creek Watershed Association. "It's such a tragedy for the creek. An ecosystem has been destroyed."

And fish continue to die as the initial mass of pollution moves down the creek, which flows into the Monongahela just down river from Point Marion, Fayette County, and as additional pollution is discharged from its mysterious source.

Environmental agencies are treating the creek as a crime scene. Longtime environmental and fisheries officials say the fish kill, which preliminary counts have put at more than 10,000, is one of the worst they've seen.

"A lot of supposition and science needs to be pieced together, but this is bad," said John Arway, chief of the Pennsylvania Fish and Boat Commission's environmental services division. "The fish that couldn't escape up side tributaries were killed."

The Pennsylvania Department of Environmental Protection on Friday said more than 30 miles of the stream have been damaged by the discharge. It has killed 18 species of fish and at least 16 species of freshwater mussels, including the salamander mussel and the snuffbox mussel -- both candidates for federal listings as endangered species.

"DEP will continue to monitor water quality so that when the responsible party is determined by West Virginia and [the U.S. Environmental Protection Agency] we are positioned to take appropriate enforcement action," said Ronald Schwartz, DEP acting regional director.

"This is the worst fish kill I've experienced in 21 years in West Virginia," said Paul Ziemkiewicz, director of

the National Research Center for Coal and Energy's Water Research Institute at West Virginia University.

Environmental agencies in West Virginia and Pennsylvania, the Pennsylvania Fish and Boat Commission, the West Virginia Department of Natural Resources and the EPA each have had inspectors on the creek in recent weeks, testing water samples, collecting dead fish and observing discharges into the water.

An early and continuing focus of the investigation has been discharges from a mine water treatment facility located at Consol Energy's Blacksville No. 2 mine in West Virginia.

But state and federal investigators are confounded because chemical analysis shows the creek water at the treatment facility site contains extremely high total dissolved solids, or TDS, and chlorides -- properties found in wastewater from Marcellus Shale gas well drilling operations but not mine water. Total dissolved solids may include metals, salts and other elements.

Marcellus Shale well drilling water contains about 100 chemicals added to reduce friction, eliminate algae growth and perform other functions when water is pumped underground under pressure to fracture the shale and release natural gas.

Up to 4 million gallons are used for each Marcellus Shale well. Disposal of wastewater from the wells has caused problems throughout Pennsylvania, including TDS readings that exceeded federal safe drinking water standards in the Monongahela River last winter and this year.

On Thursday, investigators found dead fish for the first time about a mile and a half up the creek above the treatment plant discharge.

"Our hypothesis was that it's coming out of the Blacksville No. 2 mine, but the finding of dead fish upstream from the Blacksville discharge indicates the sole cause cannot be Blacksville," said West Virginia DEP spokeswoman Kathy Cosco.

The state agencies now are looking at the possibility that someone has illegally dumped drilling wastewater into the creek to avoid the expense of complying with laws governing its disposal. The water must be treated in Pennsylvania or injected deep underground in West Virginia.

The West Virginia DEP on Friday sent a helicopter to fly over the creek to look for unauthorized discharges and places where tanker trucks could pull up and dump drilling wastewater.

"The elevated levels of TDS and chlorides in the creek indicates oil and gas drilling wastewater," Ms. Cosco said. "We are following up on every lead that people give us. If they saw a truck pull up to the creek and put a hose in, we want to know about it. We want the name on the truck, a license plate number, anything we can use to identify it."

Unlike Pennsylvania, the West Virginia DEP doesn't permit water or sewage treatment facilities in the state to accept or discharge Marcellus well wastewater, Ms. Cosco said.

Consol spokesman Tom Hoffman said the company's facility does not accept or treat gas well drilling wastewater. The company's field teams also are trying to figure out what's happening.

"Neither they nor we have been able to sort out what's going on," he said. "It's confounding because we're seeing fish kills in the vicinity of the treatment plant where you might expect Blacksville No. 2 is at fault, but also further downstream than you would expect was our fault, and recently upstream from the Blacksville 2 discharge.

"So Blacksville is a possible contributor, but it's not clear if it's the lone cause."

Mr. Hoffman said the mining company, at the suggestion of the West Virginia DEP, agreed on Thursday to shut down plant operations to assess the effect on the creek.

Water samples taken from the creek at the Blacksville mine treatment facility show extremely high levels of total dissolved solids, in the 25,000- to 35,000-milligrams-per-liter range, or about the same as in seawater. The federal safe drinking water standard is 500 milligrams per liter.

The fish started turning belly up on Sept. 1. By Sept. 4, dead fish were lining the deep pool below the Lower Brave Dam near the Greene County town of Brave.

"It's disgusting to see that much life wiped out," said Ed Presley, who owns property along the creek at the Lower Brave Dam."To see the quality and beauty of that stream and then to see what happened to it, well, it really tears at you. I'm not really a tree-hugger but to see natural things destroyed and wasted like this, it's just dead wrong."

"We're very concerned about this going on and this clearly is not an easy thing to find the source of," said EPA spokeswoman Bonnie Smith. "There are a lot of factors, ... but this is a tough one."

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

--
Patricia A. Tester, Ph.D.
Branch Chief
National Ocean Service, NOAA
101 Pivers Island Road
Beaufort NC 28516
252 728 8792
Fax 728 8784 [attachment "Chrysochromulina 100X Cells 5x3um a.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "Chrysochromulina 100X Cells 5x3um b.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "Chrysochromulina 100X Cells 5x3um c.JPG" deleted by Louis Reynolds/R3/USEPA/US]

More on the algae - confidential investigation related

Campbell, Patrick V to Mandirola, Scott G, Swiger, Bradley C, Carico, Charles M, Zeto, Michael A 09/22/2009 03:52 PM

Cc: Louis Reynolds

History: This message has been replied to.

More on the algae samples collected by EPA 9/20/09...

Here's the station key:

MDP - Mason Dixon Park
UMR - Upstream of Miracle Run
WANA - @ Wana Bridge
DBP - Downstream of Beaver Dam
UBD - Upstream of Beaver Dam
OO5 - Outall 005
WTL - Wetland

(Punchline – no Chrysochromulina in 005 or upstream of the Beaver Dam)

Also –

- We have sent fish liver and kidney samples to Tennessee Tech for a variety of analyses (including algal toxins)
- We are sending another water algae sample to the Wisconsin State Hygiene Lab for an independent analysis
- Vicki Blazer of USGS Leetown, WV advises that she will look at liver/gill histology on 9/24/09 (for the fish collected by DNR's Jim Hedrick, circa 9/16/09)
- I'm on the trail of a USGS research lab developing methods for microtoxins

pat

From: Wirts, John C
Sent: Tuesday, September 22, 2009 1:27 PM
To: Campbell, Patrick V
Subject: FW: Louis's Samples

From: Vander Borgh, Mark [mailto:mark.vanderborgh@ncdenr.gov]
Sent: Tuesday, September 22, 2009 1:22 PM
To: Wirts, John C
Subject: Louis's Samples

John, Louis sent me 7 samples. Stations MDP, UMR, WANA DPD and WTL had Chrysochromulina in them. Samples UBD and 005 (or 00S ??) did not.

Please note new E-mail address
mark.vanderborgh@ncdenr.gov-

Mark Vander Borgh
Environmental Biologist
Division of Water Quality
Phone: (919) 743-8423
Email: mark.vanderborgh@ncdenr.gov

dunkard photos

Campbell, Patrick V to: Amy Bergdale, Louis Reynolds, Frank Borsuk 09/22/2009 04:03 PM

Guys this email has large file size photo's – if they don't make it thru let me know and we'll break it up into pieces

From: Swiger, Bradley C
Sent: Monday, September 21, 2009 10:51 AM
To: Zeto, Michael A; Campbell, Patrick V
Cc: Foster, Minter C; Powroznik, Kirk A
Subject: photos

Observation report for Sept 18 & 19, 2009

Mine outlet 005 continues to discharge although substantially less at apx 18000-20000 gpd.

Algae samples were collected and transferred to Lou Reynolds on 19th. One sample each collected at 005 and wetland.

Here are some photos

4823 – Sept 18. Common surface scum, film, algae; heaviest in downstream area.
4829 – Sept 18. St Leo AMD at headwaters; discharge at the uppermost right hand corner of pond at top of photo
4830 – Sept 18. Wetland below St Leo AMD; stream enters from top of photo (note clarity of stream); sample collected from red pool of water near bottom of photo near dead, standing tree on left
4840 – Sept 18. Lower end of wetland; stream rusty color starts here and proceeds downstream
4844 – Sept 18.View of wetland; stream enters on bottom left; exists at top left
4847 – Sept 18. WV Fork downstream of wetland; note rusty color
4858 – Sept 19. Sample location in wetland at tallest dead snag at center of photo
4860 – Sept 19. Sample from wetland; yellow color becomes fainter as your proceed downstream
4862 – Sept 19. Mouth of Rudolph Run near Pentress; note minnows in clear water and distinct color between Dunkard and Rudolph
4863 – Sept 19. Mouth of Rudolph Run with Dunkard Creek.[attachment "IMG_4823.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4829.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4830.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4840.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4844.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4847.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4858.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4860.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4862.JPG" deleted by Louis Reynolds/R3/USEPA/US] [attachment "IMG_4863.JPG" deleted by Louis Reynolds/R3/USEPA/US]

Re: More on the algae - confidential investigation related

Louis Reynolds to Campbell, Patrick V 09/22/2009 04:26 PM

just got to a computer

Wisconsin contact

Steve Geis

Business: sgeis@mail.slh.wisc.edu

Phone Numbers

Business: 608-224-6269

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Campbell, Patrick V" More on the algae samples collected by EPA... 09/22/2009 03:52:00 PM

From: "Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To: "Mandirola, Scott G" <Scott.G.Mandirola@wv.gov>, "Swiger, Bradley C" <Bradley.C.Swiger@wv.gov>, "Carico, Charles M" <Charles.M.Carico@wv.gov>, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>
Cc: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/22/2009 03:52 PM
Subject: More on the algae - confidential investigation related

More on the algae samples collected by EPA 9/20/09...

Here's the station key:

MDP - Mason Dixon Park
UMR - Upstream of Miracle Run
WANA - @ Wana Bridge
DBP - Downstream of Beaver Dam
UBD - Upstream of Beaver Dam
OO5 - Outall 005
WTL - Wetland

(Punchline – no Chrysochromulina in 005 or upstream of the Beaver Dam)

Also –

- We have sent fish liver and kidney samples to Tennessee Tech for a variety of analyses (including algal toxins)
- We are sending another water algae sample to the Wisconsin State Hygiene Lab for an independent analysis
- Vicki Blazer of USGS Leetown, WV advises that she will look at liver/gill histology on 9/24/09 (for the fish collected by DNR's Jim Hedrick, circa 9/16/09)
- I'm on the trail of a USGS research lab developing methods for microtoxins

pat

From: Wirts, John C
Sent: Tuesday, September 22, 2009 1:27 PM
To: Campbell, Patrick V
Subject: FW: Louis's Samples

From: Vander Borgh, Mark [mailto:mark.vanderborgh@ncdenr.gov]
Sent: Tuesday, September 22, 2009 1:22 PM
To: Wirts, John C
Subject: Louis's Samples

John, Louis sent me 7 samples. Stations MDP, UMR, WANA DPD and WTL had Chrysochromulina in them. Samples UBD and 005 (or 00S ??) did not.

Please note new E-mail address
mark.vanderborgh@ncdenr.gov-
E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

Mark Vander Borgh
Environmental Biologist
Division of Water Quality
Phone: (919) 743-8423
Email: mark.vanderborgh@ncdenr.gov

Wirts, John C to Louis Reynolds 09/23/2009 10:34 AM

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov
[attachment "P9180545.JPG" deleted by Louis Reynolds/R3/USEPA/US]

HAB Expert contact

Wirts, John C to Campbell, Patrick V, Louis Reynolds 09/23/2009 01:53 PM

Bio for Carmelo Tomas at UNC Wilmington
http://www.uncw.edu/bio/faculty_tomas.htm

Meridith Byrd (Texas) has emailed him and asked to verify Vander Borgh's ID and to see if he could identify the toxin.
I just spoke to him – he said he'd look at the images Meridith sent and let us know what he thinks .

FW: Dunkard Ck Fish Kill

Wirts, John C to Campbell, Patrick V, Louis Reynolds 09/23/2009 02:27 PM

From: Tomas, Carmelo [mailto:tomasc@uncw.edu]
Sent: Wednesday, September 23, 2009 2:19 PM
To: Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

Hello John,

Looking at the images I would suggest they are Prymnesium and not Chrysochromulina. The densities are about right for Prymnesium blooms. This species produces potent hemolytic toxins and if you look at the fish carefully they should have bloody gills and even hemorrhagic areas about the snout, near pectoral fins and sometimes along the body. I am attaching some images of Prymnesium cell, bloom and fish that perished from the blooms in Texas. Hopefully these will be of help.

Good luck with the bloom problems and feel free to contact me if you need further information

Carm Tomas

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Wednesday, September 23, 2009 1:57 PM
To: Tomas, Carmelo
Cc: mark.vanderborgh@ncdenr.gov; Meridith Byrd
Subject: RE: Dunkard Ck Fish Kill

Dr. Tomas,
Just sending you a note with my contact info and to restate Meridith's request.
We are under a lot of pressure to identify what is causing this fish (and mussel and salamander) kill.
We'd like to issue a press release ASAP, but don't want to say something unsubstantiated.

So, along those lines – Is there someone who can identify the toxin (or degradates) that will allow us to say with some confidence that 'yes – this algal bloom is the most likely cause of the kills'?

Attached is a photo that shows the color pretty well.

And Thank you Mark and Meridith for all of the help so far...

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

From: Meridith Byrd [mailto:Meridith.Byrd@tpwd.state.tx.us]
Sent: Wednesday, September 23, 2009 12:27 PM
To: Tomas, Carmelo
Cc: mark.vanderborgh@ncdenr.gov; Wirts, John C
Subject: FW: Dunkard Ck Fish Kill
Importance: High

Hi Carm,

Attached are photos of an algal bloom that has caused massive fish kills in a creek along the PA/WV border. Would you be able to confirm species ID and/or look for toxin production?

Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax

From: Vander Borgh, Mark [mailto:mark.vanderborgh@ncdenr.gov]
Sent: Tuesday, September 22, 2009 10:58 AM
To: Pat Tester
Cc: Meridith Byrd; john.c.wirts@wv.gov
Subject: RE: Dunkard Ck Fish Kill

John, attached are photos of the alga that I believe is Chrysochromulina as distinguished by the short haptophyte flagella and golden color.
I did a quick enumeration on the sample you sent and estimate the cell density around 750,000 to 1,000,000 cells/ml
I am headed back to the lab to check out the samples Louis Reynolds sent.
Would you please forward him this email, I do not have his address.
Please contact me if you have any questions

From: Pat Tester [mailto:Pat.Tester@noaa.gov]
Sent: Tuesday, September 22, 2009 11:05 AM
To: Vander Borgh, Mark
Cc: Meridith Byrd; john.c.wirts@wv.gov
Subject: Re: Dunkard Ck Fish Kill

Hello Mark,
Thank you for your inquiry this morning. This is the "quick" answer. Let me know if you'd like to explore any aspect of this further. I can put you in touch with international experts (yes, they are Swedish). Some of the best information available in the US will come from
Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax
I have not been able to reach her today because she is in Austin but I'll copy her on this email. I suspect she'll have the most up to date information about the management of Chrysochromulina. She has been dealing with Chrysochromulina and Prymnesium in Texas lakes for more than a decade.
I've included several URLs for information but it seems that as late as 2004 the "toxin" had not been characterized. I also noticed that even more recent articles on the "toxicity" used bioassays (brine shrimp) as the measure of toxicity. Luis M. Botana's Seafood and Freshwater Toxins 2000 fails to mention Chrysochromulina or haptophyta.

http://www.jstor.org/stable/4313990 Photo and general ecology

http://www.int-res.com/articles/meps/57/m057p011.pdf
Good discussion on how Chrysochromulina differs from Prymnesium

http://cat.inist.fr/?aModele=afficheN&cpsidt=1997339

Cell density, chemical composition and toxicity of Chrysochromulina polylepis (haptophyta) in relation to different N:P supply ratios

Auteur(s) / Author(s)

JOHANSSON N.[(1)] ; GRANELI E.[(2)] ;

Affiliation(s) du ou des auteurs / Author(s) Affiliation(s)

[(1)] Department of Marine Ecology, Ecology Building, University of Lund, 223 62 Lund, SUEDE
[(2)] Department of Marine Sciences, University of Kalmar, P.O. Box 905, 391 29 Kalmar, SUEDE

Résumé / Abstract

The influence of different N:P supply ratios on cell accumulation, chemical composition and toxicity of the marine haptophyte Chrysochromulina polylepis was examined in semi-continuous cultures. A non-axenic strain of C. polylepis was exposed to five different N:P supply ratios (N:P = 1:1, 4:1, 16:1, 80:1 and 160:1, by atoms), in order to create a range of N- and P-limited conditions. The toxicity per cell in C. polylepis was determined on four occasions at steady state cell density using the haemolytic activity of the cells expressed as saponin nanoequivalents. Haemolytic activity was demonstrated in all treatments, and increased in the algae when cell growth was nutrient limited (N:P = 1:1, 4:1, 80:1 and 160:1), compared to cells grown under nonlimiting conditions (N:P = 16:1). This occurred regardless of the growth-limiting nutrient (N or P) and became more pronounced as nutrient limitation increased. In P-limited cultures the haemolytic activity per cell increased linearly with the cellular N:P ratio, whereas the N-limited cultures showed an opposite trend. The haemolytic activity per cell showed an inverse relationship with both cellular N and cellular P content. Cells limited by P showed a higher haemolytic activity than cells limited by N. The results suggest that toxicity in C. polylepis is strongly influenced by the physiological state of the algae. This may partially explain the large variability previously observed in the toxicity of C. polylepis blooms. The potential ecological significance of our findings is also discussed.

Revue / Journal Title

Marine biology **ISSN** 0025-3162 **CODEN** MBIOAJ

Source / Source

1999, vol. 135, n°2, pp. 209-217 (1 p.1/4)

http://www.springerlink.com/content/a736467130261830/
Potential toxicity of the freshwater *Chrysochromulina* species *C. parva* (Prymnesiophyceae)
Abstract A mass development of *Chrysochromulina parva* Lackey — 614 000 cells per ml, associated with fish mortality, is reported from a small Danish lake. None of the analyses performed showed any reason for the fish kill. Even oxygen conditions were favourable. Thus toxins from the *Chrysochromulina* might be responsible for the fish kill. If true, this would be the first record of toxicity in a freshwater *Chrysochromulina* .

Vander Borgh, Mark wrote:
John, from a preliminary scan the algae in the sample you sent is Chrysochromulina, possibly the same alga that has caused problems in Texas. I have taken the liberty to contact Pat Tester (NOAA)(252-728-8792) who is more familiar with brackish/marine toxic algae to see what we can do to confirm the identification and advice on who to contact for further testing.

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Monday, September 21, 2009 11:38 AM
To: mark.vanderborgh@ncmail.net
Subject: Dunkard Ck Fish Kill

Mark,
Here's some recent info on the fish kill. And my contact info:

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

----- Forwarded by Jessica Greathouse/R3/USEPA/US on 09/21/2009 09:32 AM -----

Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Roy Seneca to: Bonnie Smith, David Sternberg, capacasa.jon, Stefania Shamet, Terri-A White, Jessica Greathouse, carlson.eric — 09/21/2009 08:38 AM

Sudden death of ecosystem ravages long creek
'Everything is being killed': 161 aquatic species have died along Dunkard Creek
Sunday, September 20, 2009
By Don Hopey, Pittsburgh Post-Gazette
Bob Donaldson/Post-Gazette

Just 20 days ago, Dunkard Creek, which meanders lazily back and forth across the border of Pennsylvania and West Virginia, was one of the most ecologically diverse streams in both states, containing freshwater mussels, mudpuppy salamanders and a host of fish species from minnows to 3-foot-long muskies.

Generations of families picnicked along its sycamore-lined banks and swam in its warm water. Fishermen plied its green, slow-moving pools with lures and bait in hopes of catching lunker bass.

But today, the 38-mile creek is all but dead, its 161 species of fish, mussels, salamanders, crayfish and aquatic insects killed by mysterious pollutants coming from sources state and federal agencies have yet to pinpoint despite aggressive field work.

"We've just been decimated down here. Everything is being killed almost from the headwaters of the creek to where it flows into the Monongahela River," said Betty Wiley, president of the Dunkard Creek Watershed Association. "It's such a tragedy for the creek. An ecosystem has been destroyed."

And fish continue to die as the initial mass of pollution moves down the creek, which flows into the Monongahela just down river from Point Marion, Fayette County, and as additional pollution is discharged from its mysterious source.

Environmental agencies are treating the creek as a crime scene. Longtime environmental and fisheries officials say the fish kill, which preliminary counts have put at more than 10,000, is one of the worst they've seen.

"A lot of supposition and science needs to be pieced together, but this is bad," said John Arway, chief of the Pennsylvania Fish and Boat Commission's environmental services division. "The fish that couldn't escape up side tributaries were killed."

The Pennsylvania Department of Environmental Protection on Friday said more than 30 miles of the stream have been damaged by the discharge. It has killed 18 species of fish and at least 16 species of freshwater mussels, including the salamander mussel and the snuffbox mussel -- both candidates for federal listings as endangered species.

"DEP will continue to monitor water quality so that when the responsible party is determined by West Virginia and [the U.S. Environmental Protection Agency] we are positioned to take appropriate enforcement action," said Ronald Schwartz, DEP acting regional director.

"This is the worst fish kill I've experienced in 21 years in West Virginia," said Paul Ziemkiewicz, director of the National Research Center for Coal and Energy's Water Research Institute at West Virginia University.

Environmental agencies in West Virginia and Pennsylvania, the Pennsylvania Fish and Boat Commission, the West Virginia Department of Natural Resources and the EPA each have had inspectors on the creek in recent weeks, testing water samples, collecting dead fish and observing discharges into the water.

An early and continuing focus of the investigation has been discharges from a mine water treatment facility located at Consol Energy's Blacksville No. 2 mine in West Virginia.

But state and federal investigators are confounded because chemical analysis shows the creek water at the treatment facility site contains extremely high total dissolved solids, or TDS, and chlorides -- properties found in wastewater from Marcellus Shale gas well drilling operations but not mine water. Total dissolved solids may include metals, salts and other elements.

Marcellus Shale well drilling water contains about 100 chemicals added to reduce friction, eliminate algae growth and perform other functions when water is pumped underground under pressure to fracture the shale and release natural gas.

Up to 4 million gallons are used for each Marcellus Shale well. Disposal of wastewater from the wells has caused problems throughout Pennsylvania, including TDS readings that exceeded federal safe drinking water standards in the Monongahela River last winter and this year.

On Thursday, investigators found dead fish for the first time about a mile and a half up the creek above the treatment plant discharge.

"Our hypothesis was that it's coming out of the Blacksville No. 2 mine, but the finding of dead fish upstream from the Blacksville discharge indicates the sole cause cannot be Blacksville," said West Virginia DEP spokeswoman Kathy Cosco.

The state agencies now are looking at the possibility that someone has illegally dumped drilling wastewater into the creek to avoid the expense of complying with laws governing its disposal. The water must be treated in Pennsylvania or injected deep underground in West Virginia.

The West Virginia DEP on Friday sent a helicopter to fly over the creek to look for unauthorized discharges and places where tanker trucks could pull up and dump drilling wastewater.

"The elevated levels of TDS and chlorides in the creek indicates oil and gas drilling wastewater," Ms. Cosco said. "We are following up on every lead that people give us. If they saw a truck pull up to the creek and put a hose in, we want to know about it. We want the name on the truck, a license plate number, anything we can use to identify it."

Unlike Pennsylvania, the West Virginia DEP doesn't permit water or sewage treatment facilities in the state to accept or discharge Marcellus well wastewater, Ms. Cosco said.

Consol spokesman Tom Hoffman said the company's facility does not accept or treat gas well drilling wastewater. The company's field teams also are trying to figure out what's happening.

"Neither they nor we have been able to sort out what's going on," he said. "It's confounding because we're seeing fish kills in the vicinity of the treatment plant where you might expect Blacksville No. 2 is at fault, but also further downstream than you would expect was our fault, and recently upstream from the Blacksville 2 discharge.

"So Blacksville is a possible contributor, but it's not clear if it's the lone cause."

Mr. Hoffman said the mining company, at the suggestion of the West Virginia DEP, agreed on Thursday to shut down plant operations to assess the effect on the creek.

Water samples taken from the creek at the Blacksville mine treatment facility show extremely high levels of total dissolved solids, in the 25,000- to 35,000-milligrams-per-liter range, or about the same as in seawater. The federal safe drinking water standard is 500 milligrams per liter.

The fish started turning belly up on Sept. 1. By Sept. 4, dead fish were lining the deep pool below the Lower Brave Dam near the Greene County town of Brave.

"It's disgusting to see that much life wiped out," said Ed Presley, who owns property along the creek at the Lower Brave Dam."To see the quality and beauty of that stream and then to see what happened to it, well, it really tears at you. I'm not really a tree-hugger but to see natural things destroyed and wasted like this, it's just dead wrong."

"We're very concerned about this going on and this clearly is not an easy thing to find the source of," said EPA spokeswoman Bonnie Smith. "There are a lot of factors, ... but this is a tough one."

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

--
Patricia A. Tester, Ph.D.
Branch Chief
National Ocean Service, NOAA
101 Pivers Island Road
Beaufort NC 28516
252 728 8792
Fax 728 8784

Fw: DEP press relase from WVa DEP Sept 21

Louis Reynolds to: john.c.wirts — 09/23/2009 02:47 PM

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/23/2009 02:43 PM -----

From:	Bonnie Smith/R3/USEPA/US
To:	Louis Reynolds/R3/USEPA/US@EPA, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, David Sternberg/R3/USEPA/US@EPA
Date:	09/23/2009 02:45 PM
Subject:	DEP press relase from WVa DEP Sept. 21

Dunkard Creek.doc

phycotech

Louis Reynolds to: patrick.v.campbell — 09/23/2009 03:16 PM

We might ask them if they can do it and how much.

I think a positive ID from someone willing to certify it is necessary . Certainly CONSOL will do that.

http://www.phycotech.com/

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

FW: Dunkard Ck Fish Kill

Wirts, John C t o Louis Reynolds 09/23/2009 03:27 PM

More contacts.
Meridith had told me earlier that Jennifer could ID the toxin - We're getting close to being out of water to send. Do you wanna see if she'd look at a water sample?

From: Meridith Byrd [mailto:Meridith.Byrd@tpwd.state.tx.us]
Sent: Wednesday, September 23, 2009 3:14 PM
To: Wirts, John C; mark.vanderborgh@ncdenr.gov
Subject: RE: Dunkard Ck Fish Kill

Hi there,

If you hadn't heard from Dr. Tomas you might try calling him:
Dr. Carmelo R. Tomas, Professor
UNC Wilmington
Center for Marine Science
5600 Marvin K. Moss Lane
Wilmington, NC 28409
Tel: (910) 962-2385
Fax: (910) 962-2410
tomasc@uncw.edu

Jennifer Wolny of the Florida Fish and Wildlife Research Institute is also a good resource:
Jennifer Wolny
FIO Research Faculty
Fish and Wildlife Research Institute
100 8th Ave SE
St. Petersburg, FL 33701
727.896.8626 (phone)
727.550.4222 (fax)
jennifer.wolny@myfwc.com

I spoke to Loraine Fries of our TPWD Environmental Contaminants Lab in San Marcos and she is happy to help in any way she can. However, it will be next week before they are able to receive any samples. Loraine said that she is willing to help with species confirmation and perform a fish bioassay for toxicity as well.
Loraine Fries
TPWD IF - Analytical Services
505 Staples Road
San Marcos, TX 78666
Tel: 512-353-3486
FAX: 512-353-7329
loraine.fries@tpwd.state.tx.us

The photos you sent look like *Prymnesium parvum* to me, but I admit I'm not as familiar with *Chrysochromulina* . Here's a quick rundown on *Prymnesium parvum* in Texas:

- The species was discovered in 1985 on Texas' Pecos River. This was the first recorded occurrence in the Western Hemisphere, and Texas had occasional blooms until 2001. Since 2001 we have had P. parvum blooms every year like clockwork.
- We are not sure what triggered the widespread bloom in 2001 or what has caused the blooms to go from an occasional happening to a seasonal occurrence.
- *P. parvum* can tolerate a wide range of temperatures and salinities (brackish water to full seawater salinities).
- In Texas it's a winter bloomer due to its tolerance for cold temps. Once temps have knocked down populations of competing algae, *P. parvum* will take advantage of the available nutrients and bloom.
- We begin seeing small blooms in October through the holidays. Our large, long-term blooms usually begin right around the first of the year. We have to have long periods of cold that will drop the water temperature & knock out the rest of the algal population. It usually takes until December/January for this to happen.
- Blooms are not always toxic. You can see upwards of 50,000 cells/ml and no dead fish.
- *P. parvum* turns toxic when nutrients are scarce. They are mixotrophs, able to utilize nutrients in the water or release their toxin, kill surrounding organisms, and feed off them. Dr. Edna Graneli (Sweden) has documentation of *P. parvum* feeding on blood cells collected from a horse.
- Conversely, in nutrient-limited conditions you can see toxic blooms in low concentrations (a few thousand per ml).

I'm going to go look for a few *P. parvum* PowerPoint presentations to send to you guys. Please get in touch if you have any more questions!

Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Wednesday, September 23, 2009 12:57 PM
To: Tomas, Carmelo
Cc: mark.vanderborgh@ncdenr.gov; Meridith Byrd
Subject: RE: Dunkard Ck Fish Kill

Dr. Tomas,
Just sending you a note with my contact info and to restate Meridith's request.
We are under a lot of pressure to identify what is causing this fish (and mussel and salamander) kill.
We'd like to issue a press release ASAP, but don't want to say something unsubstantiated.

So, along those lines – Is there someone who can identify the toxin (or degradates) that will allow us to say with some confidence that 'yes – this algal bloom is the most likely cause of the kills'?

Attached is a photo that shows the color pretty well.

And Thank you Mark and Meridith for all of the help so far…

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

From: Meridith Byrd [mailto:Meridith.Byrd@tpwd.state.tx.us]
Sent: Wednesday, September 23, 2009 12:27 PM
To: Tomas, Carmelo
Cc: mark.vanderborgh@ncdenr.gov; Wirts, John C
Subject: FW: Dunkard Ck Fish Kill
Importance: High

Hi Carm,

Attached are photos of an algal bloom that has caused massive fish kills in a creek along the PA/WV border. Would you be able to confirm species ID and/or look for toxin production?

Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax

From: Vander Borgh, Mark [mailto:mark.vanderborgh@ncdenr.gov]
Sent: Tuesday, September 22, 2009 10:58 AM
To: Pat Tester
Cc: Meridith Byrd; john.c.wirts@wv.gov
Subject: RE: Dunkard Ck Fish Kill

John, attached are photos of the alga that I believe is Chrysochromulina as distinguished by the short haptophyte flagella and golden color.
I did a quick enumeration on the sample you sent and estimate the cell density around 750,000 to 1,000,000 cells/ml
I am headed back to the lab to check out the samples Louis Reynolds sent.
Would you please forward him this email, I do not have his address.
Please contact me if you have any questions

From: Pat Tester [mailto:Pat.Tester@noaa.gov]
Sent: Tuesday, September 22, 2009 11:05 AM
To: Vander Borgh, Mark
Cc: Meridith Byrd; john.c.wirts@wv.gov
Subject: Re: Dunkard Ck Fish Kill

Hello Mark,
Thank you for your inquiry this morning. This is the "quick" answer. Let me know if you'd like to explore any aspect of this further. I can put you in touch with international experts (yes, they are Swedish). Some of the best information available in the US will come from
Meridith Byrd
HAB Response Coordinator
Texas Parks and Wildlife
2805 North Navarro, Suite 600A
Victoria, TX 77901
361.575.6306
361.572.4134 fax
I have not been able to reach her today because she is in Austin but I'll copy her on this email. I suspect she'll have the most up to date information about the management of Chrysochromulina. She has been dealing with Chrysochromulina and Prymnesium in Texas lakes for more than a decade.
I've included several URLs for information but it seems that as late as 2004 the "toxin" had not been characterized. I also noticed that even more recent articles on the "toxicity" used bioassays (brine shrimp) as the measure of toxicity. Luis M. Botana's Seafood and Freshwater Toxins 2000 fails to mention Chrysochromulina or haptophyta.

http://www.jstor.org/stable/4313990 Photo and general ecology

http://www.int-res.com/articles/meps/57/m057p011.pdf
Good discussion on how Chrysochromulina differs from Prymnesium

http://cat.inist.fr/?aModele=afficheN&cpsidt=1997339

Cell density, chemical composition and toxicity of Chrysochromulina polylepis (haptophyta) in relation to different N:P supply ratios

Auteur(s) / Author(s)
JOHANSSON N. [1] ; GRANELI E. [2] ;

Affiliation(s) du ou des auteurs / Author(s) Affiliation(s)
[1] Department of Marine Ecology, Ecology Building, University of Lund, 223 62 Lund, SUEDE
[2] Department of Marine Sciences, University of Kalmar, P.O. Box 905, 391 29 Kalmar, SUEDE

Résumé / Abstract
The influence of different N:P supply ratios on cell accumulation, chemical composition and toxicity of the marine haptophyte Chrysochromulina polylepis was examined in semi-continuous cultures. A non-axenic strain of C. polylepis was exposed to five different N:P supply ratios (N:P = 1:1, 4:1, 16:1, 80:1 and 160:1, by atoms), in order to create a range of N- and P-limited conditions. The toxicity per cell in C. polylepis was determined on four occasions at steady state cell density using the haemolytic activity of the cells expressed as saponin nanoequivalents. Haemolytic activity was demonstrated in all treatments, and increased in the algae when cell growth was nutrient limited (N:P = 1:1, 4:1, 80:1 and 160:1), compared to cells grown under nonlimiting conditions (N:P = 16:1). This occurred regardless of the growth-limiting nutrient (N or P) and became more pronounced as nutrient limitation increased. In P-limited cultures the haemolytic activity per cell increased linearly with the cellular N:P ratio, whereas the N-limited cultures showed an opposite trend. The haemolytic activity per cell showed an inverse relationship with both cellular N and cellular P content. Cells limited by P showed a higher haemolytic activity than cells limited by N. The results suggest that toxicity in C. polylepis is strongly influenced by the physiological state of the algae. This may partially explain the large variability previously observed in the toxicity of C. polylepis blooms. The potential ecological significance of our findings is also discussed.

Revue / Journal Title
Marine biology **ISSN** 0025-3162 **CODEN** MBIOAJ

Source / Source
1999, vol. 135, n°2, pp. 209-217 (1 p.1/4)

http://www.springerlink.com/content/a736467130261830/
Potential toxicity of the freshwater *Chrysochromulina* species *C. parva* (Prymnesiophyceae)
Abstract A mass development of *Chrysochromulina parva* Lackey — 614 000 cells per ml, associated with fish mortality, is reported from a small Danish lake. None of the analyses performed showed any reason for the fish kill. Even oxygen conditions were favourable. Thus toxins from the *Chrysochromulina* might be responsible for the fish kill. If true, this would be the first record of toxicity in a freshwater *Chrysochromulina* .

Vander Borgh, Mark wrote:
John, from a preliminary scan the algae in the sample you sent is Chrysochromulina, possibly the same alga that has caused problems in Texas. I have taken the liberty to contact Pat Tester (NOAA)(252-728-8792) who is more familiar with brackish/marine toxic algae to see what we can do to confirm the identification and advice on who to contact for further testing.

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Monday, September 21, 2009 11:38 AM
To: mark.vanderborgh@ncmail.net
Subject: Dunkard Ck Fish Kill

Mark,
Here's some recent info on the fish kill. And my contact info:

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

----- Forwarded by Jessica Greathouse/R3/USEPA/US on 09/21/2009 09:32 AM -----

Pittsburgh Post-Gazette (9-20) Sudden death of ecosystem ravages long creek

Roy Seneca to: Bonnie Smith, David Sternberg, capacasa.jon, Stefania Shamet, Terri-A White, Jessica Greathouse, carlson.eric — 09/21/2009 08:38 AM

Sudden death of ecosystem ravages long creek
'Everything is being killed': 161 aquatic species have died along Dunkard Creek
Sunday, September 20, 2009
By Don Hopey, Pittsburgh Post-Gazette

Bob Donaldson/Post-Gazette

Just 20 days ago, Dunkard Creek, which meanders lazily back and forth across the border of Pennsylvania and West Virginia, was one of the most ecologically diverse streams in both states, containing freshwater mussels, mudpuppy salamanders and a host of fish species from minnows to 3-foot-long muskies.

Generations of families picnicked along its sycamore-lined banks and swam in its warm water. Fishermen plied its green, slow-moving pools with lures and bait in hopes of catching lunker bass.

But today, the 38-mile creek is all but dead, its 161 species of fish, mussels, salamanders, crayfish and aquatic insects killed by mysterious pollutants coming from sources state and federal agencies have yet to pinpoint despite aggressive field work.

"We've just been decimated down here. Everything is being killed almost from the headwaters of the creek to where it flows into the Monongahela River," said Betty Wiley, president of the Dunkard Creek Watershed Association. "It's such a tragedy for the creek. An ecosystem has been destroyed."

And fish continue to die as the initial mass of pollution moves down the creek, which flows into the Monongahela just down river from Point Marion, Fayette County, and as additional pollution is discharged from its mysterious source.

Environmental agencies are treating the creek as a crime scene. Longtime environmental and fisheries officials say the fish kill, which preliminary counts have put at more than 10,000, is one of the worst they've seen.

"A lot of supposition and science needs to be pieced together, but this is bad," said John Arway, chief of the Pennsylvania Fish and Boat Commission's environmental services division. "The fish that couldn't escape up side tributaries were killed."

The Pennsylvania Department of Environmental Protection on Friday said more than 30 miles of the stream have been damaged by the discharge. It has killed 18 species of fish and at least 16 species of freshwater mussels, including the salamander mussel and the snuffbox mussel -- both candidates for federal listings as endangered species.

"DEP will continue to monitor water quality so that when the responsible party is determined by West Virginia and [the U.S. Environmental Protection Agency] we are positioned to take appropriate enforcement action," said Ronald Schwartz, DEP acting regional director.

"This is the worst fish kill I've experienced in 21 years in West Virginia," said Paul Ziemkiewicz, director of the National Research Center for Coal and Energy's Water Research Institute at West Virginia University.

Environmental agencies in West Virginia and Pennsylvania, the Pennsylvania Fish and Boat Commission, the West Virginia Department of Natural Resources and the EPA each have had inspectors on the creek in recent weeks, testing water samples, collecting dead fish and observing discharges into the water.

An early and continuing focus of the investigation has been discharges from a mine water treatment facility located at Consol Energy's Blacksville No. 2 mine in West Virginia.

But state and federal investigators are confounded because chemical analysis shows the creek water at the treatment facility site contains extremely high total dissolved solids, or TDS, and chlorides -- properties found in wastewater from Marcellus Shale gas well drilling operations but not mine water. Total dissolved solids may include metals, salts and other elements.

Marcellus Shale well drilling water contains about 100 chemicals added to reduce friction, eliminate algae growth and perform other functions when water is pumped underground under pressure to fracture the shale and release natural gas.

Up to 4 million gallons are used for each Marcellus Shale well. Disposal of wastewater from the wells has caused problems throughout Pennsylvania, including TDS readings that exceeded federal safe drinking water standards in the Monongahela River last winter and this year.

On Thursday, investigators found dead fish for the first time about a mile and a half up the creek above the treatment plant discharge.

"Our hypothesis was that it's coming out of the Blacksville No. 2 mine, but the finding of dead fish upstream from the Blacksville discharge indicates the sole cause cannot be Blacksville," said West Virginia DEP spokeswoman Kathy Cosco.

The state agencies now are looking at the possibility that someone has illegally dumped drilling wastewater into the creek to avoid the expense of complying with laws governing its disposal. The water must be treated in Pennsylvania or injected deep underground in West Virginia.

The West Virginia DEP on Friday sent a helicopter to fly over the creek to look for unauthorized discharges and places where tanker trucks could pull up and dump drilling wastewater.

"The elevated levels of TDS and chlorides in the creek indicates oil and gas drilling wastewater," Ms. Cosco said. "We are following up on every lead that people give us. If they saw a truck pull up to the creek and put a hose in, we want to know about it. We want the name on the truck, a license plate number, anything we can use to identify it."

Unlike Pennsylvania, the West Virginia DEP doesn't permit water or sewage treatment facilities in the state to accept or discharge Marcellus well wastewater, Ms. Cosco said.

Consol spokesman Tom Hoffman said the company's facility does not accept or treat gas well drilling wastewater. The company's field teams also are trying to figure out what's happening.

"Neither they nor we have been able to sort out what's going on," he said. "It's confounding because we're seeing fish kills in the vicinity of the treatment plant where you might expect Blacksville No. 2 is at fault, but also further downstream than you would expect was our fault, and recently upstream from the Blacksville 2 discharge.

"So Blacksville is a possible contributor, but it's not clear if it's the lone cause."

Mr. Hoffman said the mining company, at the suggestion of the West Virginia DEP, agreed on Thursday to shut down plant operations to assess the effect on the creek.

Water samples taken from the creek at the Blacksville mine treatment facility show extremely high levels of total dissolved solids, in the 25,000- to 35,000-milligrams-per-liter range, or about the same as in seawater. The federal safe drinking water standard is 500 milligrams per liter.

The fish started turning belly up on Sept. 1. By Sept. 4, dead fish were lining the deep pool below the Lower Brave Dam near the Greene County town of Brave.

"It's disgusting to see that much life wiped out," said Ed Presley, who owns property along the creek at the Lower Brave Dam."To see the quality and beauty of that stream and then to see what happened to it, well, it really tears at you. I'm not really a tree-hugger but to see natural things destroyed and wasted like this, it's just dead wrong."

"We're very concerned about this going on and this clearly is not an easy thing to find the source of," said EPA spokeswoman Bonnie Smith. "There are a lot of factors, ... but this is a tough one."

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

--
Patricia A. Tester, Ph.D.
Branch Chief
National Ocean Service, NOAA
101 Pivers Island Road
Beaufort NC 28516
252 728 8792
Fax 728 8784

Dunkard Creek

Brethauer, Charles
t o : Arway, John, Qualters, Thomas, Svetahor, Emil, 'borsuk.frank@epamail.epa.gov', 'bradley.c.swiger@wv.gov', 'reynolds.louis@epa.gov', 'teerod@windstream.net', Spear, Richard , Harper, Samuel, Halloran, Kevin, Swarm, H. Scott, Cox, Stacy, Dunn, Howard, Flannigan, Zachary, Schwartz, Ronald , Owoc, Abbey, Graham, Rita

09/23/2009 03:49 PM

History: This message has been forwarded.

FYI, learned today that Consol has a consultant focusing on toxic golden algae as the reason for the fish kill. He is associated with Southern Regional Aquaculture Center.

RE: phycotech

Campbell, Patrick V to Louis Reynolds 09/23/2009 09:56 PM

lou - swiger can collect algae samples tomorrow. any idea on how many the nc guy will look at ??? i'll be calling at 7:30 or so to discuss.... pat

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Wed 9/23/2009 3:16 PM
To: Campbell, Patrick V
Subject: phycotech

We might ask them if they can do it and how much.

I think a positive ID from someone willing to certify it is necessary . Certainly CONSOL will do that.

http://www.phycotech.com/

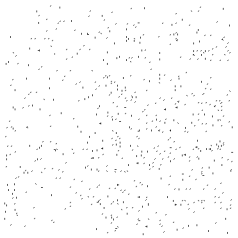
lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

prynesium fact sheet

Campbell, Patrick V to Louis Reynolds 09/24/2009 08:55 AM

History: This message has been forwarded.



Lot's of bingo's here Algal Toxins in Pond Aquaculture.pdf

The latest from WV...

Campbell, Patrick V to Spear, Richard, Schwartz, Ronald 09/24/2009 09:06 AM

History: This message has been forwarded.

Guys – I know we haven't communicated a great deal on the Dunkard kills ; we've been completely focused on finding the cause and may be getting close . By now I'm sure you've heard of the golden algae theory. I think it has merit. We hope to press release some things on this today.

Attached is an informative link. Read the words on prymnesium.
http://aquanic.org/management%20practices/documents/SRAC4605.pdf

Fw: The latest from WV...

Louis Reynolds to frankjernejcic 09/24/2009 03:19 PM

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/24/2009 03:15 PM -----

From: "Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To: "Spear, Richard" <rspear@state.pa.us>, "Schwartz, Ronald" <roschwartz@state.pa.us>
Date: 09/24/2009 09:06 AM
Subject: The latest from WV...

Guys – I know we haven't communicated a great deal on the Dunkard kills ; we've been completely focused on finding the cause and may be getting close . By now I'm sure you've heard of the golden algae theory. I think it has merit. We hope to press release some things on this today.

Attached is an informative link. Read the words on prymnesium.
http://aquanic.org/management%20practices/documents/SRAC4605.pdf

Fw: ESC Dunkard Creek Workspace

Louis Reynolds to Brethauer, Charles, john.c.wirts, rspear, Swiger, Bradley C, John Arway, frankjernejcic, janetclayton@wvdnr.gov — 09/24/2009 04:15 PM

It would really help the collaborative process if we could all upload our data onto this website.

This is the website:

http://oaspub.epa.gov/portal/page/portal/ESConnector/CNTR_ESC/ESCHOME/MYWORKBENCH?escSelectedProjectId=28150

These are the instructions

http://badger.epa.gov/esc/guidanceDocs/help/general5.html

This data can also include fish kill observations, etc.

I know that everyone might not be able to release data quite yet - but upload what you can.

It may not work smoothly - please yet me know if you are having problems (it works differently for EPA and nonEPA folks).

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 09/24/2009 02:27 PM -----

From: Chad Harsh/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/24/2009 02:23 PM
Subject: Fw: ESC Dunkard Creek Workspace

Please forward to anyone who needs access.

Chad

----- Forwarded by Chad Harsh/R3/USEPA/US on 09/24/2009 02:18 PM -----

From: Matthew Colip/R3/USEPA/US
To: Chad Harsh/R3/USEPA/US@EPA
Date: 09/23/2009 03:55 PM
Subject: ESC Dunkard Creek Workspace

Chad,

Go to the link below, you'll be prompted for your LAN username and password.

http://oaspub.epa.gov/portal/page/portal/ESConnector/CNTR_ESC/ESCHOME/MYWORKBENCH?escSelectedProjectId=28150

Getting your non-EPA partners into the Portal shouldn't be that difficult, get back in touch with me whenever is convenient for you.

Matt

Matthew R. Colip
Biologist
Office of Program Support (3WP60)
Water Protection Division
U.S. Environmental Protection Agency, Region 3
1650 Arch St, Philadelphia, PA 19103
Phone: (215)-814-5439
Fax: (215)-814-2301

FW: Dunkard Creek fish kill

Chalfant, Brian to Louis Reynolds — 09/25/2009 12:16 PM

History: This message has been replied to.

Good move, Lou.

http://www.wvpubcast.org/newsarticle.aspx?id=11396

...In a Sept. 14 memo, EPA biologist Lou Reynolds blames the fish kill on chloride from a major mine on Dunkard Creek: Consol's Blacksville #2.
Reynolds writes: "At this time, all indications are that the outfall from the Blacksville #2 mine is the likely culprit of this kill. The high amount of chloride in that waste stream is certainly toxic to aquatic organisms."
Reynolds declined a request for an interview...

-----Original Message-----
From: Botts, William
Sent: Friday, September 25, 2009 10:02 AM
To: Kime, Rodney; Chalfant, Brian; Pulket, Molly; Williams, Amy
Subject: FW: Dunkard Creek fish kill

-----Original Message-----
From: Schott, Robert
Sent: Friday, September 25, 2009 9:44 AM
To: Schott, Robert
Subject: Dunkard Creek fish kill

How silly of me to think otherwise.

http://www.post-gazette.com/pg/09268/1000694-113.stm

FW: DEP Release Dunkard Creek Fish Kill

Campbell, Patrick V to Bret Preston, Frank Jernejcic, Louis Reynolds, Frank Borsuk, Amy Bergdale, Vicki S Blazer, Martha Wells, Wellman, David, jheath, Schwartz, Ronald, Spear, Richard, Brandon J. Keplinger, Johnson, Andrew N LRH, Row, Robert D LRH, Reilly, Rosemary J LRP, Paul Ziemkiewicz, bpallay — 09/25/2009 02:58 PM

In case you folks don't otherwise receive this...

From: Cosco, Kathy
Sent: Friday, September 25, 2009 2:43 PM
To: DEP All
Subject: DEP Release Dunkard Creek Fish Kill

DEP narrows down causes of fish kill

The West Virginia Department of Environmental Protection now believes a golden algae bloom is linked to a large fish kill on Dunkard Creek, in northern West Virginia and southwestern Pennsylvania. DEP staff members investigating the incident narrowed down the causes of the fish kill after consulting with algae experts from West Virginia University, North Carolina and Texas.

The algae found in Dunkard Creek has been tentatively identified as *Prymnesium parvum*, commonly called golden algae, which occurs worldwide, but primarily in coastal waters that have higher salt or mineral content. The algae produces toxins that can affect gill-breathing organisms and the most visible result of a fish kill caused by golden alga is dead and dying fish and mussels of all species and sizes.

The characteristics of the fish kill are almost identical to what is seen in other parts of the country that also have had golden algae kills.

"Narrowing down the cause will allow us and anyone who may be found to be responsible to find a solution," said Cabinet Secretary Randy Huffman. "Some members of our investigation team are now turning their attention to finding ways to minimize or eliminate the algae bloom. We are also evaluating what can be done to prevent this from happening in the future, in Dunkard and other watersheds."

All available information indicates that golden algae is not known to cause human health problems, and no immediate harmful effects have been recorded in mammals and birds observed eating dead and dying fish and drinking the water in areas with golden algae.

To avoid the possibility of spreading the algae, the DEP requests that all entities refrain from

transporting water from Dunkard Creek to other watersheds.

"While it appears that saline- and mineral-rich environments are conducive to the growth of the golden algae in Dunkard Creek, we aren't sure if the algae was introduced into the creek or if it just proliferated due to favorable conditions," Huffman said. "It could have been transplanted in a number of ways, including waterfowl, water transport or even waders of fishermen who have fished in affected waters in other states."

While the DEP understands that it may be difficult to determine how the algae came to be in Dunkard Creek, the agency acknowledges the severity of the situation and is committed to continue to work with the other involved agencies to determine the extent of damage and what can be done to control the problem.

– 30 –

Kathy Cosco
Communications Director
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
Office 304-926-0499, ext. 1331
Cell 304-561-8996

DEP narrows down causes of fish kill.docx

Re: FW: Dunkard Creek fish kill

Louis Reynolds to Chalfant, Brian 09/28/2009 07:59 AM

Brian -

Since I can't see you, I am not certain if your tongue is in your cheek or not....

While at the time this seemed to be the case directly, there is no denying that the algae found on Dunkard is perfectly capable of producing the kill we have seen. And the MO fits with what I have seen in the field. Experience in Texas shows that the algae and the toxin produced by the algae are positively correlated with TDS.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Chalfant, Brian" Good move, Lou. http://www.wvpubcast.org/new... 09/25/2009 12:16:59 PM

From: "Chalfant, Brian" <bchalfant@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/25/2009 12:16 PM
Subject: FW: Dunkard Creek fish kill

Good move, Lou.

http://www.wvpubcast.org/newsarticle.aspx?id=11396

...In a Sept. 14 memo, EPA biologist Lou Reynolds blames the fish kill on chloride from a major mine on Dunkard Creek: Consol's Blacksville #2.
Reynolds writes: "At this time, all indications are that the outfall from the Blacksville #2 mine is the likely culprit of this kill. The high amount of chloride in that waste stream is certainly toxic to aquatic organisms."
Reynolds declined a request for an interview...

-----Original Message-----
From: Botts, William
Sent: Friday, September 25, 2009 10:02 AM
To: Kime, Rodney; Chalfant, Brian; Pulket, Molly; Williams, Amy
Subject: FW: Dunkard Creek fish kill

-----Original Message-----
From: Schott, Robert

Sent: Friday, September 25, 2009 9:44 AM
To: Schott, Robert
Subject: Dunkard Creek fish kill

How silly of me to think otherwise.

http://www.post-gazette.com/pg/09268/1000694-113.stm

RE: FW: Dunkard Creek fish kill

Chalfant, Brian to Louis Reynolds 09/28/2009 08:35 AM

Yes, I was joking. I would have declined further interview on Dunkard Creek too, if I were you, which I'm not. From what I've read/heard it sounds like high TDS/chloride --> murderous algae --> dead critters.

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, September 28, 2009 8:00 AM
To: Chalfant, Brian
Subject: Re: FW: Dunkard Creek fish kill

Brian -

Since I can't see you, I am not certain if your tongue is in your cheek or not....

While at the time this seemed to be the case directly, there is no denying that the algae found on Dunkard is perfectly capable of producing the kill we have seen. And the MO fits with what I have seen in the field. Experience in Texas shows that the algae and the toxin produced by the algae are positively correlated with TDS.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Chalfant, Brian" <bchalfant@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/25/2009 12:16 PM
Subject: FW: Dunkard Creek fish kill

Good move, Lou.

http://www.wvpubcast.org/newsarticle.aspx?id=11396

...In a Sept. 14 memo, EPA biologist Lou Reynolds blames the fish kill on chloride from a major mine on Dunkard Creek: Consol's Blacksville #2.
Reynolds writes: "At this time, all indications are that the outfall from the Blacksville #2 mine is the likely culprit of this kill. The high amount of chloride in that waste stream is certainly toxic to aquatic organisms."
Reynolds declined a request for an interview...

-----Original Message-----
From: Botts, William
Sent: Friday, September 25, 2009 10:02 AM
To: Kime, Rodney; Chalfant, Brian; Pulket, Molly; Williams, Amy
Subject: FW: Dunkard Creek fish kill

-----Original Message-----
From: Schott, Robert
Sent: Friday, September 25, 2009 9:44 AM
To: Schott, Robert
Subject: Dunkard Creek fish kill

How silly of me to think otherwise.

http://www.post-gazette.com/pg/09268/1000694-113.stm

FW: [unio] Algae cited as cause of a large fish and mussel kill

Arway, John o 'cvaughn@ou.edu' 09/29/2009 08:42 AM

Cc: "Urban, Chris", "Hartle, Mark", "Svetahor, Emil", "Brethauer, Charles", "Harper, Samuel", "Robert Anderson (Robert_M_Anderson@fws.gov)", Louis Reynolds

Dr. Vaughn,
Bob Anderson from our US FWS office in PA forwarded the following discussion from the Unio List Serv. I wanted to follow-up on your offer to provide the contact information for your colleague, Dr. Hambright in your Lab. We would greatly appreciate your offer of looking at the species of algae in the stream and especially the possibility of isolating the toxins. We need to know how you would like the samples collected and either preserved or kept alive and the holding time for the samples. We have a crew going to the field tomorrow to collect benthic macroinvertebrate samples and they could also collect the algal samples. If you or Dr. Hambright could advise about the methods, it would be greatly appreciated.

Regards,

><(*John* {(°>

John Arway, Chief
Environmental Services Division
PA Fish & Boat Commission
450 Robinson Lane
Bellefonte, PA 16823
jarway@state.pa.us

----- Forwarded by Anthony Velasco/R4/FWS/DOI on 09/28/2009 04:30 PM -----

Robert_M_Anderson@fws.gov 09/28/2009 03:54 PM

Tounio@lists.fit.edu
cc
SubjectRE: [unio] Algae cited as cause of a large fish and mussel kill

P
l

easerespondtounio@listsfitedu

Thank you for the offer. Attached is a link to a separate report:
http://www.post-gazette.com/pg/09268/1000694-113.stm

Robert M. Anderson
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
(814)234-4090 x228

"Vaughn, Caryn C." <cvaughn@ou.edu>

"Vaughn, Caryn C." <cvaughn@ou.edu>

To "unio@lists.fit.edu" <unio@lists.fit.ec

cc

Subject RE: [unio] Algae cited as cause of a la and mussel kill

Please respond to unio@lists.fit.edu

09/28/2000 03:27 PM

Robert - A phycologist colleague of mine, Dave

Hambright, is working on a large fish and game
funded project to identify the toxins produced by
golden algae that kill fish.
Golden algae have been responsible for multiple recent
fish kills in Texas and Oklahoma,
including some in streams. Dave is willing to examine
a sample to (1) see if the algae
are Prymnesium parvum and (2) see which toxins are
involved. His response is below.
Let me know what I can do to facilitate putting the
appropriate parties in touch. Caryn

"Caryn, I believe that several of the Texas fish kills
have been in streams (if you can call the Pecos and its
tributaries streams!).
If you know any of these guys out east that can access
some water from Dunkard creek, we'd be delighted to
give them a hand.
Minimally we could run a filter through PCR and tell
them whether the algae are golden algae or not.Also,
given appropriate volumes,
we should be able to quantify at least two of the
toxins (if they are present).
Dave"

Caryn C. Vaughn
Director, Oklahoma Biological Survey
Presidential Professor of Zoology
University of Oklahoma
Norman, OK 73019
(405) 325-4034
http://faculty-staff.ou.edu/V/Caryn.C.Vaughn-1/

From: Robert_M_Anderson@fws.gov
[Robert_M_Anderson@fws.gov]
Sent: Monday, September 28, 2009 1:41 PM
To: unio@lists.fit.edu
Subject: [unio] Algae cited as cause of a large fish
and mussel kill

The attached link regards an extensive mussel and fish
kill along the Pennsylvania/West Virginia border. Is
anyone aware of Prymnesium parvum causing a kill in a
free-flowing inland stream?

http://www.pittsburghlive.com/x/pittsburghtrib/sports/outdoors/s_644987.html#

Robert M. Anderson
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
(814)234-4090 x228

WV/PA Fish Kill Samples

Arway, John to 'vicki_blazer@usgs.gov' 09/29/2009 08:48 AM

Cc: "Robert Anderson (Robert_M_Anderson@fws.gov)", "Urban, Chris", "Svetahor, Emil" , "Brethauer, Charles", "Harper, Samuel", Louis Reynolds

Hi Vicki,
I understand that EPA has provided you with some dead fish samples for analyses and recently saw the following List Serv discussion that may be of some interest. Thought you may want to consult with your Columbia Lab about their findings which may also be relevant to these samples. Look forward to your results since seems to get more complicated by the day-- now evaluating the toxic algae theory.

Regards,

><(*John* {(°>

John Arway, Chief
Environmental Services Division
PA Fish & Boat Commission
450 Robinson Lane
Bellefonte, PA 16823
jarway@state.pa.us

----- Forwarded by Robert M Anderson/R5/FWS/DOI on 09/28/2009 04:59 PM -----

Anthony Velasco/R4/FWS/DOI 09/28/2009 04:36 PM

To Robert_M_Anderson@fws.gov

cc

Subject Fw: [unio] Algae cited as cause of a large fish and mussel kill

Robert -

If you can preserve some live, moribund, or fresh dead fish in 10% formalin (you'll have to open at vent/intestinal wall for fixing internal organs), you can determine an impact by heavy brines. I had a similar instance recently and contract USGS-CERC labs in MO and we found some cellular-level tissue injury that seems to be characteristic. We are preparing to publish these findings.

Feel free to contact me if you want more information.

Anthony L. Velasco, Ecologist
USFWS - Environmental Contaminants Division
Kentucky Ecological Services Field Office
J C Watts Federal Building - Room 265
330 West Broadway
Frankfort, KY 40601
502-695-0468 x.105 (o)
502-695-1024 (f)
502-330-5665 (c)

FW: [unio] Algae cited as cause of a large fish and mussel kill

Arway, John to Louis Reynolds, Frank Borsuk, Hartle, Mark 09/29/2009 10:57 AM

Mark,
Can you get set up to do this on short notice? Perhaps check with Dave Truesdale at Benner Springs on filtering and bottles. Our DEP WQ sampl coolers should be good for shipping. How about you guys at EPA. Would have the setup to do this and perhaps you could meet upo with Mark in the field sometime over the next 2 days?

Thanks and I know this is a bit of a hurry but if we can't do it now, we can plan a special trip later.

Let me know.

><(*John* {(°>

-----Original Message-----
From: Dave Hambright [mailto:dhambright@ou.edu]
Sent: Tuesday, September 29, 2009 10:46 AM
To: Arway, John
Cc: Caryn Vaughn; Karen L. Glenn
Subject: Fwd: [unio] Algae cited as cause of a large fish and mussel kill

John, We'll be happy to help out.
There are several options:
1) molecular ID - for this we need GF/C filters from 250-1000 mL (depending on how much will go through the filter). Several filters would be best. The filters should be folded once, wrapped in aluminium foil and frozen (-20C). If shipped (overnight) by the next day on dry ice, they should be fine. If more than a day, they should be stored at -80C before shipping on dry ice.
2) Microscopic ID - here a simple 100mL whole water sample with 1-2% Lugol's solution is ok.
3) Toxins - two possibilities (should shoot for both)
a) 1-2 liters of whole water. Nalgene HD bottles best, no head space. We'll extract these and analyze for two primary toxins that we see in Oklahoma and Texas.
b) 1 liter of whole water. If golden algae are present, we'll pick individual cells and inoculate cultures. These will then be grown to high densities and then we can scan for toxins.
Both of these should be shipped cold. If you prefer, all samples can be shipped together in dry ice, though separate shipments might best guarantee that the filters arrive in good condition.
3a tells us if toxins are currently in the water. Because the toxins degrade fairly quickly, this will likely be negative unless the bloom is still active. If 3b reveals toxins, it will at least tell us that toxins may have been involved in the fish kill.
Any info you can provide regarding water quality, temp, etc would be helpful. Also, if you have photos of dead or dying fish showing hemorrhaging at the base of paired fins and around the gills, this would help document P. parvum.

Please ship the samples to my lab manager:
Karen Glenn
Plankton Ecology Lab
University of Oklahoma Biological Station
HC 71 Box 205
1074 OU Road
Kingston, Oklahoma 73439
(405)325-7432
A brief email at the time of shipping would be helpful.
If you have any questions, please do not hesitate to contact Karen or me.
Dave

K. David Hambright, Associate Professor
Program in Ecology and Evolutionary Biology
Biological Station and Department of Zoology
University of Oklahoma
Norman, OK 73019
Office: 104 Sutton Hall (campus) / 103 Research Bldg (UOBS)
Phone: 405-325-7435
Fax: 405-325-0835
Mailing Address:
Department of Zoology
730 Van Vleet Oval
University of Oklahoma
Norman, OK 73019
http://faculty-staff.ou.edu/H/Karl.D.Hambright-1/

Begin forwarded message:

From: "Vaughn, Caryn C." <cvaughn@ou.edu>
Date: September 29, 2009 8:29:19 AM CDT
To: "Hambright, Karl D." <dhambright@ou.edu>
Subject: FW: [unio] Algae cited as cause of a large fish and mussel kill

Dave - see below. Will you respond to them directly? Caryn

From: Arway, John [jarway@state.pa.us]
Sent: Tuesday, September 29, 2009 7:38 AM
To: Vaughn, Caryn C.
Cc: Urban, Chris; Hartle, Mark; Svetahor, Emil; Brethauer, Charles; Harper, Samuel; Robert Anderson (Robert_M_Anderson@fws.gov); Reynolds. Louis (reynolds.louis@epamail.epa.gov)
Subject: FW: [unio] Algae cited as cause of a large fish and mussel kill

Dr. Vaughn,
Bob Anderson from our US FWS office in PA forwarded the following discussion from the Unio List Serv. I wanted to follow-up on your offer to provide the contact

information for your colleague, Dr. Hambright in your Lab. We would greatly appreciate your offer of looking at the species of algae in the stream and especially the possibility of isolating the toxins. We need to know how you would like the samples collected and either preserved or kept alive and the holding time for the samples. We have a crew going to the field tomorrow to collect benthic macroinvertebrate samples and they could also collect the algal samples. If you or Dr. Hambright could advise about the methods, it would be greatly appreciated.

Regards,

<(John{(°>

John Arway, Chief
Environmental Services Division
PA Fish & Boat Commission
450 Robinson Lane
Bellefonte, PA 16823
jarway@state.pa.us

----- Forwarded by Anthony Velasco/R4/FWS/DOI on 09/28/2009 04:30 PM -----
Robert_M_Anderson@fws.gov

09/28/2009 03:54 PM
Please respond to
unio@lists.fit.edu

To

unio@lists.fit.edu

cc

Subject

RE: [unio] Algae cited as cause of a large fish and mussel kill

Thank you for the offer. Attached is a link to a separate report:
http://www.post-gazette.com/pg/09268/1000694-113.stm

Robert M. Anderson
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
(814)234-4090 x228

[cid:image003.gif@01CA405F.DEDEBAD0]"Vaughn, Caryn C." <cvaughn@ou.edu>
"Vaughn, Caryn C." <cvaughn@ou.edu>

09/28/2009 03:27 PM
Please respond to
unio@lists.fit.edu

To

"unio@lists.fit.edu" <unio@lists.fit.edu>

cc

Subject

RE: [unio] Algae cited as cause of a large fish and mussel kill

Robert - A phycologist colleague of mine, Dave Hambright, is working on a large fish and game
funded project to identify the toxins produced by golden algae that kill fish.
Golden algae have been responsible for multiple recent fish kills in Texas and Oklahoma, including some in streams. Dave is willing to examine a sample to (1) see if the algae are Prymnesium parvum and (2) see which toxins are involved. His response is below. Let me know what I can do to facilitate putting the appropriate parties in touch. Caryn

"Caryn, I believe that several of the Texas fish kills have been in streams (if you can call the Pecos and its tributaries streams!).
If you know any of these guys out east that can access some water from Dunkard creek, we'd be delighted to give them a hand.
Minimally we could run a filter through PCR and tell them whether the algae are golden algae or not.Also, given appropriate volumes,
we should be able to quantify at least two of the toxins (if they are present).
Dave"

Caryn C. Vaughn
Director, Oklahoma Biological Survey
Presidential Professor of Zoology
University of Oklahoma
Norman, OK 73019
(405) 325-4034
http://faculty-staff.ou.edu/V/Caryn.C.Vaughn-1/

From: Robert_M_Anderson@fws.gov [Robert_M_Anderson@fws.gov]
Sent: Monday, September 28, 2009 1:41 PM
To: unio@lists.fit.edu
Subject: [unio] Algae cited as cause of a large fish and mussel kill

The attached link regards an extensive mussel and fish kill along the Pennsylvania/West Virginia border. Is anyone aware of Prymnesium parvum causing a kill in a free-flowing inland stream?

http://www.pittsburghlive.com/x/pittsburghtrib/sports/outdoors/s_644987.html#<
http://www.pittsburghlive.com/x/pittsburghtrib/sports/outdoors/s_644987.html>

Robert M. Anderson
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
(814)234-4090 x228

[cid:image004.gif@01CA405F.DEDEBAD0]


prymnesium info

Campbell, Patrick V to Louis Reynolds 09/29/2009 11:25 AM

From: Wirts, John C
Sent: Tuesday, September 29, 2009 11:09 AM
To: myarmstead@potesta.com
Cc: Campbell, Patrick V
Subject:

Mindy,
Here is link to the presentation that includes the growth studies on 3 strains of P parvum:
http://www.tpwd.state.tx.us/landwater/water/environconcerns/hab/ga/workshop/media/kugrens.pdf

Also- attached is data from Dunkard Ck ambient site – results thru June 09. I'll be pulling more recent data together shortly.

John

Dunkard Ambient.xlsx

RE: Dunkard information

Harper, Samuel to Chad Harsh 09/29/2009 01:18 PM

Cc: "Brethauer, Charles", "Milcic, Kareen" , "Schwartz, Ronald", Nina Rivera, Louis Reynolds

We have plenty of room so please attend if you can.

-----Original Message-----
From: Harsh.Chad@epamail.epa.gov [mailto:Harsh.Chad@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 12:27 PM
To: Harper, Samuel
Cc: Brethauer, Charles; Milcic, Kareen; Schwartz, Ronald; Rivera.Nina@epamail.epa.gov; Reynolds.Louis@epamail.epa.gov
Subject: RE: Dunkard information

Sam, looks like we can make the meeting. Attending will be Nina Rivera, our attorney working on the case, Lou Reynolds from Wheeling, and myself.

Thanks for the invitation, but I don't think I can make the meeting on Friday. I'll let you know if anything changes. I hope to at least get a chance to talk with Charlie at the meeting on Wednesday described below.

Chad

Chad et al:

I have cc: Pennsylvania DEP contacts (Charles Brethauer and Harold Miller) and WVDEP contacts (Ken Ellison & Pat Campbell) concerning the meeting and site tour this Wednesday. The Penn State USDA Coop Unit located in Waynesburg, PA (http://greene.extension.psu.edu/) located at 26 WEST High Street Waynesburg has agreed to allow us to use their meeting room for the initial powerpoint presentation and display of maps, etc. It will be dry and quite in this space. There is 2 hour meter parking along side the building. Here are basic directions from Mt Morris to the USDA center in Waynesburg.

- Map
- Avoid

10: Merge onto **I-79 N** via the ramp on the **LEFT**. 7.3 mi

11: Take the **PA-21** exit, **EXIT 14**, toward **MASONTOWN/WAYNESBURG**.	0.3 mi	• Map • Avoid
12: Turn **RIGHT** onto **PA-21 W/ROY E FURMAN HWY**.	1.1 mi	• Map • Avoid
13: Turn **RIGHT** onto **E HIGH ST/US-19 N/PA-21 W**.	1.3 mi	• Map • Avoid
14: **26 W HIGH ST** is on the **LEFT**.	0.0 mi	• Map

We will be meeting at noon on Wednesday, September 30th at the USDA COOP Building located in Waynesburg at 26 West High Street. The West Virginia University staff and researchers will present and provide copies of relevant information on water quality and the underground mine pools and treatment areas. Currently, we have 2 or 3 people coming from Pennsylvania & West Virginia (total 6 state people) and 3 to 4 USEPA staff from Philly. After the work session at USDA, we will convoy in a few vehicles (we will try and have 2 or 3 vehicles max and combine staff from the different groups into vehicles with the WVU researchers. We will tour the relevant areas of the DUNKARD CREEK watershed.

The objectives of the session is to allow WVU to share the information and expertise on the water quality, mine pools, and logistics of the active management of all of the data.

If anyone gets lost, my personal cell number is 304-231-7492 but remember, limited cell service off the interstate.

Frank Borsuk, Ph.D.
Aquatic/Fisheries Biologist
Freshwater Biology Team
USEPA-Region 3 (Wheeling Office)
Office of Monitoring & Assessment (3EA50)
Environmental Assessment & Innovation Division
1060 Chapline Street, Suite 303
Wheeling, WV 26003-2995
304-234-0241 Phone
304-234-0260 Fax
borsuk.frank@epa.gov

Please visit our website at http://epa.gov/reg3esd1/3ea50.htm

RE: Dunkard information

Harper, Samuel to: Chad Harsh 09/28/2009 04:07 PM

Cc: "Brethauer, Charles", "Schwartz, Ronald" , "Milcic, Kareen"

Consol will be in PA DEP's Office in Pittsburgh this Friday 10-02-09 at 10:00 to discuss the Golden Algae issue. EPA is welcome to attend. The PA Fish and Boat Commission will attend and on of our lawyers. I you need any additional info please call me at 412-442-4060 or my cell at 412-225-0946.

-----Original Message-----
From: Harsh.Chad@epamail.epa.gov [mailto:Harsh.Chad@epamail.epa.gov]
Sent: Thursday, September 24, 2009 12:44 PM
To: Brethauer, Charles
Cc: Hines, John; Capacasa.Jon@epamail.epa.gov; Sherman, Michael D; Schwartz, Ronald; Harper, Samuel

Subject: RE: Dunkard information

EPA can participate on the call if you think it would add value. Beyond this call, I think there is a need to establish a defined mechanism for EPA, PA, and WV to coordinate activities and share information on the fish kill and the overall Mon TDS issue.

From: "Brethauer, Charles" <cbrethauer@state.pa.us>

To: "Harper, Samuel" <saharper@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, "Hines, John" <johines@state.pa.us>, "Schwartz, Ronald" <roschwartz@state.pa.us>

Cc: Jon Capacasa/R3/USEPA/US@EPA, "Sherman, Michael D" <msherman@state.pa.us>

Date: 09/24/2009 11:23 AM

Subje RE: Dunkard information

ct:

We are expecting a call from WV starting sometime between 1 & 2 today.
-----Original Message-----
From: Harper, Samuel
Sent: Thursday, September 24, 2009 10:46 AM
To: 'Harsh.Chad@epamail.epa.gov'; Hines, John; Schwartz, Ronald
Cc: Capacasa.Jon@epamail.epa.gov; Sherman, Michael D; Brethauer, Charles
Subject: RE: Dunkard information

We will be available for a call to discuss the conditions on Dunkard. Consol called yesterday to talk about the algae issue. This algae is a brackish species and is a symptom of the high TDS. The high TDS selects on the golden algae. The problem is still caused by the high TDS in our opinion. Since we know that water from the Morris Run Borehole bleeds through the coal barrier into Blacksville #2 I asked Consol to sample that water in the call yesterday. They agreed to collect the sample. They did not dispute that water from Blacksville #1 leaks into Blacksville #2. Just let us know when the call will take place. I believe that we have a call with West Virginia this afternoon.
-----Original Message-----
From: Harsh.Chad@epamail.epa.gov [mailto:Harsh.Chad@epamail.epa.gov]
Sent: Thursday, September 24, 2009 9:18 AM
To: Hines, John; Schwartz, Ronald; Harper, Samuel
Cc: Capacasa.Jon@epamail.epa.gov
Subject: Dunkard information

John/Ron/Sam,

Jon asked that I forward to you the attached report. I would like to set up a call with EPA, PA and WV for sometime later today or tomorrow to share information and discuss next steps. Please let me know your availability and contact me if you have any questions.

Chad
215-814-2633

RE: dunkard creek discussion

Janet Clayton to: Louis Reynolds 09/30/2009 07:26 AM

I'll plan to be there. Directions?

Janet L. Clayton
Wildlife Diversity Biologist II
WVDNR
PO Box 67
Elkins, WV 26241

304-637-0245 x 2010

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: cbrethauer@state.pa.us; curban@state.pa.us; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; rspear@state.pa.us; teerod@wavestream.net; c-nwelte@state.pa.us; frankjernejcic@wvdnr.gov; janetclayton@wvdnr.gov; jarway@state.pa.us; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@usgs.gov
Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: dunkard creek discussion

Janet Clayton to Louis Reynolds 09/30/2009 07:50 AM

History: This message has been replied to.

I just talked to Frank J and he said that next Friday is their Mon water quality forum in Morgantown. He is not available either way as he will be on leave that Friday.
He suggested that we really need to get together before then.
Frank B and I are to be helping Patty Morrison on Wed and Thurs.

Janet L. Clayton
Wildlife Diversity Biologist II
WVDNR
PO Box 67
Elkins, WV 26241

304-637-0245 x 2010

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: cbrethauer@state.pa.us; curban@state.pa.us; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; rspear@state.pa.us; teerod@wavestream.net; c-nwelte@state.pa.us; frankjernejcic@wvdnr.gov; janetclayton@wvdnr.gov; jarway@state.pa.us; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@usgs.gov
Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303

Confidential Investigation Related Quantified algae results.. (also a note on anabaena)

Campbell, Patrick V — To: Swiger, Bradley C, Zeto, Michael A; Carico, Charles M, Bret; Preston, Frank Jernejcic — 09/30/2009 10:14 AM

Cc: "Mandirola, Scott G"

History: This message has been replied to.

See #'s below…

From: Wirts, John C
Sent: Wednesday, September 30, 2009 9:21 AM
To: Campbell, Patrick V
Subject: FW: Dunkard Ck Fish Kill

From: Tomas, Carmelo [mailto:tomasc@uncw.edu]
Sent: Tuesday, September 29, 2009 5:01 PM
To: Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

John,

Here is the breakdown of the samples you sent. We did counts on all samples sent and did hemolytic assays of WANA, MDP, WTL samples. For these 50 mL samples were spun down by centrifuge, the pellet was harvested and then tested using an Erythrocyte Lysis assay. Results give as % of a saponin control .

	Cells/mL	% Hemolysis Cells
WANA	345,320	959
MDP	242,300	911
WTL	304,600	936
UMR	102.200	____
DBP	94.600	____
UBD	460	____

According to counts the densities were

1. WANA
2. WTL
3 MDP
4 UMR
5 DBP
6 UBD

For hemolytic analyses top three are in order.

As for Anabaena, I have seen some but not an extraordinary amount but then I am not familiar with your waters to know if it is more than usual. Let me know if you have any questions. Attached are some photo's. Not the best and rounded cells are stressed from being under a coverslip. They are really elongated but move too fast for digital photographs. You can clearly see the two flagella, haptonema (extra flagella like structure) and refractile bodies (spheres) within cells. All characteristic of Prymnesium parvum.

Good luck, Carm

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Tuesday, September 29, 2009 12:27 PM
To: Tomas, Carmelo
Subject: RE: Dunkard Ck Fish Kill

Thanks Carm.
Any progress on getting concentrations?
A phycologist at West Virginia U says he's seen a lot of anabaena in the samples he's looked at. Have you seen it in the samples sent last week?

From: Tomas, Carmelo [mailto:tomasc@uncw.edu]
Sent: Saturday, September 26, 2009 3:22 PM
To: Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

John,

This is to confirm that we received the samples in great shape. I have confirmed that you do indeed have blooms of Prymnesium parvum in all stations. I will be able to give you concentrations on Monday and will send some images. Cells are the classic shape and have flagella and haptonema characteristic of this species. As I mentioned to you and Pat over the phone, this organism produces highly hemolytic substances and fish usually die from exposure through their gills to these hemolysins. Once it appears, it tends to remain waxing and waning but persistently present. The highest conductivity areas seem to be the most impacted (not surprising). Will have more for you at the beginning of the week. Call if you need other details.

Carm Tomas

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Thursday, September 24, 2009 4:42 PM
To: Tomas, Carmelo
Cc: Campbell, Patrick V
Subject: RE: Dunkard Ck Fish Kill

Dr. Tomas,

We have delivered a box with 6 samples to Fed-Ex for overnight delivery. (One liter per

sample)
The samples we are sending will be labeled with the following codes :

*MDP – Dunkard Creek @ Mason Dixon Park (Sp. Conductance – 2300 -)
UMR – Dunkard Creek - Upstream of Miracle Run (average Sp. Conductance - 4400, Total dissolved solids = 2450 mg/L, Chlorides ~430 mg/L, and Sulfate ~ 1280 mg/L)
*WANA – West Virginia Fork of Dunkard Ck @ Wana Bridge (Avg Sp. Conductance – 3400, TDS ?)
DBP – South Fork of WV Fk - Downstream of Beaver Dam
UBD - South Fork of WV Fk - Upstream of Beaver Dam
WTL – Wetland proper (South Fk of WV Fk)
(Sp. conductance has averaged ~ 11,000, TDS ~ 9,000, Chlorides ~ 1400, and Sulfates ~ 3800 at a couple locations in the South Fork of WV Fk of Dunkard over the last couple weeks)

I think the Wana Bridge (WANA) sample is probably priority #1. The second most important sample is the from Mason Dixon Park (MDP). By this point Dunkard Creek has received enough dilution to stay below 2 ppt – although there is still discoloration and fish died in this section as well. Actually we've received word that fish have been seen dying all the way down to the mouth of Dunkard, ~ 19 miles downstream of our most downstream sample (MDP). If our priorities change before you get the samples , I'll email and/or call.

From the air - it looks like the bloom started in the beaver dam that is not far downstream of one of the treated mine discharges .
Although, just looking at the color of the samples that were collected this morning , it looks like the bloom may be subsiding from the this old beaver dam wetland area . Would it be expected for cell densities in a shallow wetland to vary much day to day ? (ie – would you expect a string of 2 or 3 cloudy days to have a significant impact on the algae density)?

Again, thanks for your efforts in helping us with this ,
John

RE: dunkard creek discussion
t
Urban, Chris o Louis Reynolds 09/30/2009 04:38 PM
:

History: This message has been replied to.

Lou,

John and I will not be able to make it on this date, but Nevin will be there to represent us…

Chris

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: Brethauer, Charles; Urban, Chris; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; Welte, Nevin; frankjernejcic@wvdnr.gov; janetclayton@; Arway, John; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@
Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

P 304-234-0244
F 304-234-0260

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995

RE: dunkard creek discussion

Louis Reynolds to: Urban, Chris 09/30/2009 04:50 PM

Thanks, Chris.

Janet Clayton and Frank J are having some problems right now with Friday but want to meet. Are you guys available Monday or Tuesday? I am wondering if we should leave the DEP's out....

By the way, I want to apologize to you for putting out a memo that had your emails in them, which were leaked to the press along with the memo. It was intended as an internal document. I won't make that mistake again.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Urban, Chris" Lou, John and I will not be able to make it on this... 09/30/2009 04:38:25 PM

From: "Urban, Chris" <curban@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/30/2009 04:38 PM
Subject: RE: dunkard creek discussion

Lou,

John and I will not be able to make it on this date, but Nevin will be there to represent us...

Chris

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: Brethauer, Charles; Urban, Chris; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; Welte, Nevin; frankjernejcic@wvdnr.gov; janetclayton@; Arway, John; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@

Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US
To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGulgan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <MichaelA.Zeto@wv.gov>
Date: 09/14/2009 07:40 PM
Subj: dunkard creek update

e
ct
:

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: *Confidential: Re: Confidential Investigation Related Quantified algae results... (also a note on anabaena)

Campbell, Patrick V To: Louis Reynolds 10/01/2009 07:53 AM

I think I already have it... Keep this close to the vest and see if you think it's enough.

"A preliminary assessment is there certainly seems to be a toxic response. The livers and the gills appear the most severely affected. Gills have lifting of the epithelium, thickening of the epithelium over on the secondary lamellae, in areas leading to fusion. There is proliferation of the mucous cells ans some species have inflammation in the gills as well. The liver pathology differed among species with rock bass having areas of necrosis, enlarged hepatocytes and some areas with very vacuolated cells. Suckers had areas of inflammation with a lot of yellowish brown pigment in the hepatocytes. We will do a spewcial stain to see if that is ceroid - oxidized lipid or hemosiderin - a breakdown product of red blood cells. Some of the fish had congestion and hemorrhage in the spleen, kidney and sometimes liver."

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Wednesday, September 30, 2009 4:25 PM
To: Campbell, Patrick V
Subject: *Confidential: Re: Confidential Investigation Related Quantified algae results ... (also a note on anabaena)

Pat,

Thanks for sharing.

I think that we need something from Vicki now that will confirm a hemotoxin.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Fro m: "Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To: "Swiger, Bradley C" <Bradley.C.Swiger@wv.gov>, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>, "Carico, Charles M" <Charles.M.Carico@wv.gov>, Bret Preston <bretpreston@wvdnr.gov>, Frank Jernejcic <frankjernejcic@wvdnr.gov>
Cc: "Mandirola, Scott G" <Scott.G.Mandirola@wv.gov>
Date: 09/30/2009 10:14 AM
Subj ect: Confidential Investigation Related Quantified algae results ... (also a note on anabaena)

See #'s below...

From: Wirts, John C
Sent: Wednesday, September 30, 2009 9:21 AM
To: Campbell, Patrick V
Subject: FW: Dunkard Ck Fish Kill

From: Tomas, Carmelo [mailto:tomasc@uncw.edu]
Sent: Tuesday, September 29, 2009 5:01 PM
To: Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

John,

Here is the breakdown of the samples you sent. We did counts on all samples sent and did hemolytic assays of WANA, MDP, WTL samples. For these 50 mL samples were spun down by centrifuge, the pellet was harvested and then tested using an Erythrocyte Lysis assay. Results give as % of a saponin control .

	Cells/mL	% Hemolysis Cells
WANA	345,320	959
MDP	242,300	911
WTL	304,600	936
UMR	102.200	___
DBP	94.600	___
UBD	460	___

According to counts the densities were

1. WANA
2. WTL
3 MDP
4 UMR
5 DBP
6 UBD

For hemolytic analyses top three are in order.

As for Anabaena, I have seen some but not an extraordinary amount but then I am not familiar with your waters to know if it is more than usual. Let me know if you have any questions. Attached are some photo's. Not the best and rounded cells are stressed from being under a coverslip. They are really elongated but move too fast for digital photographs. You can clearly see the two flagella, haptonema (extra flagella like structure) and refractile bodies (spheres) within cells. All characteristic of Prymnesium parvum.

Good luck, Carm

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Tuesday, September 29, 2009 12:27 PM
To: Tomas, Carmelo
Subject: RE: Dunkard Ck Fish Kill

Thanks Carm.
Any progress on getting concentrations?
A phycologist at West Virginia U says he's seen a lot of anabaena in the samples he's looked at. Have you seen it in the samples sent last week?

From: Tomas, Carmelo [mailto:tomasc@uncw.edu]
Sent: Saturday, September 26, 2009 3:22 PM
To: Wirts, John C
Subject: RE: Dunkard Ck Fish Kill

John,

This is to confirm that we received the samples in great shape. I have confirmed that you do indeed have blooms of Prymnesium parvum in all stations. I will be able to give you concentrations on Monday and will send some images. Cells are the classic shape and have flagella and haptonema characteristic of this species. As I mentioned to you and Pat over the phone, this organism produces highly hemolytic substances and fish usually die from exposure through their gills to these hemolysins. Once it appears, it tends to remain waxing and waning but persistently present. The highest conductivity areas seem to be the most impacted (not surprising). Will have more for you at the beginning of the week. Call if you need other details.

Carm Tomas

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Thursday, September 24, 2009 4:42 PM
To: Tomas, Carmelo
Cc: Campbell, Patrick V
Subject: RE: Dunkard Ck Fish Kill

Dr. Tomas,

We have delivered a box with 6 samples to Fed-Ex for overnight delivery. (One liter per sample)
The samples we are sending will be labeled with the following codes :

*MDP – Dunkard Creek @ Mason Dixon Park (Sp. Conductance – 2300 -)
UMR – Dunkard Creek - Upstream of Miracle Run (average Sp. Conductance - 4400, Total dissolved solids = 2450 mg/L, Chlorides ~430 mg/L, and Sulfate ~ 1280 mg/L)
*WANA – West Virginia Fork of Dunkard Ck @ Wana Bridge (Avg Sp. Conductance – 3400, TDS ?)
DBP – South Fork of WV Fk - Downstream of Beaver Dam
UBD - South Fork of WV Fk - Upstream of Beaver Dam
WTL – Wetland proper (South Fk of WV Fk)
(Sp. conductance has averaged ~ 11,000, TDS ~ 9,000, Chlorides ~ 1400, and Sulfates ~ 3800 at a couple locations in the South Fork of WV Fk of Dunkard over the last couple weeks)

I think the Wana Bridge (WANA) sample is probably priority #1. The second most important sample is the from Mason Dixon Park (MDP). By this point Dunkard Creek has received enough dilution to stay below 2 ppt – although there is still discoloration and fish died in this section as well. Actually we've received word that fish have been seen dying all the way down to the mouth of Dunkard, ~ 19 miles downstream of our most downstream sample (MDP). If our priorities change before you get the samples, I'll email and/or call.

From the air - it looks like the bloom started in the beaver dam that is not far downstream of one of the treated mine discharges.
Although, just looking at the color of the samples that were collected this morning, it looks like the bloom may be subsiding from the this old beaver dam wetland area . Would it be expected for cell densities in a shallow wetland to vary much day to day ? (ie – would you expect a string of 2 or 3 cloudy days to have a significant impact on the algae density)?

Again, thanks for your efforts in helping us with this,
John

[attachment "untitled016 copy.jpg" deleted by Louis Reynolds/R3/USEPA/US] [attachment "Pparv18.jpg" deleted by Louis Reynolds/R3/USEPA/US] [attachment "Pparv1.jpg" deleted by Louis Reynolds/R3/USEPA/US]

RE: dunkard creek discussion

Welte, Nevin to Louis Reynolds 10/01/2009 08:26 AM

Lou,

I will be attending in person.

Look forward to the discussion!

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: Brethauer, Charles; Urban, Chris; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; Welte, Nevin; frankjernejcic@wvdnr.gov; janetclayton@; Arway, John; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@
Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from

other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: dunkard creek discussion

Urban, Chris to Louis Reynolds 10/01/2009 09:33 AM

Cc: "Arway, John"

Hey Lou,

John and I will be at our Commission meeting early next week, and Wed I am out... A lot going on, but there is some potential for Tuesday or later in the week. I would like John to weigh-in on this.

Not a problem with the "leak", as you never know if what you write will show up in the press...

Chris

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Wednesday, September 30, 2009 4:50 PM
To: Urban, Chris
Subject: RE: dunkard creek discussion

Thanks, Chris.

Janet Clayton and Frank J are having some problems right now with Friday but want to meet. Are you guys available Monday or Tuesday? I am wondering if we should leave the DEP's out....

By the way, I want to apologize to you for putting out a memo that had your emails in them, which were leaked to the press along with the memo. It was intended as an internal document. I won't make that mistake again.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Urban, Chris" <curban@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 09/30/2009 04:38 PM
Subject: RE: dunkard creek discussion

Lou,

John and I will not be able to make it on this date, but Nevin will be there to represent us...

Chris

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, September 29, 2009 9:35 PM
To: Brethauer, Charles; Urban, Chris; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; Welte, Nevin; frankjernejcic@wvdnr.gov; janetclayton@; Arway, John; Rivera.Nina@epamail.epa.gov; jimhedrick@wvdnr.gov; Borsuk.Frank@epamail.epa.gov; Krock.Kelly@epamail.epa.gov; Bergdale.Amy@epamail.epa.gov; Pond.Greg@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; vicki_blazer@
Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring

along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

salty data

Campbell, Patrick V to: Louis Reynolds 10/01/2009 03:48 PM

attached swiger WVDEP_Dunkard_Data.xls

RE: dunkard creek discussion - rescheduled

Brethauer, Charles to: Louis Reynolds 10/01/2009 03:51 PM

Cc: "Miller, Harold", "Koricich, Joel"

Lou, if you are talking next week, Tuesday is better for the PA DEP Water Mgmt program . If you do have to schedule on Monday, we will still have reps there, just a couple will be missing. .

I'll forward your email to Harold Miller and Joel Koricich so they can respond to your question directly. They are with PA DEP's mining program and are part of our Dunkard investigation team .

Charlie

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 2:43 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; Arway, John; John Arway; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: Re: dunkard creek discussion - rescheduled

Because the Mon River Water Quality Forum is on Friday, we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: cbrethauer@state.pa.us, curban@state.pa.us, John Arway <jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date: 09/29/2009 09:35 PM

Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion - rescheduled

Campbell, Patrick V to Louis Reynolds 10/02/2009 08:01 AM

Lou, I'm more in favor of the Tuesday ones , with the 13 th being preferred...

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov
[mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; c-nwelte@state.pa.us; cbrethauer@state.pa.us; curban@state.pa.us; Borsuk.Frank@epamail.epa.gov; Jernejcic, Frank; Pond.Greg@epamail.epa.gov; Clayton, Janet; John Arway; jarway@state.pa.us; Hedrick, Jim; Forren.John@epamail.epa.gov; Wirts, John C; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Campbell, Patrick V; rspear@state.pa.us; teerod@wavestream.net; vicki_blazer@usgs.gov
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

|Louis Reynolds/R3/USEPA/US@EPA

|------------>
| Cc: |
|------------>

|Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, |frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway |<jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret |Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, |vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

|------------>
| Date: |
|------------>

|10/01/2009 02:43 PM

|------------>
| Subject: |
|------------>

|Re: dunkard creek discussion - rescheduled

Because the Mon River Water Quality Forum is on Friday , we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US
|

>----------
|------------>
| To: |
|------------>

>----------
|cbrethauer@state.pa.us, curban@state.pa.us, John Arway
<jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA,
john.c.wirts@wv.gov, |
|Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov, |
|janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us,
Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank |
|Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy
Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret
|
|Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov
<vicki_blazer@usgs.gov>
|

>----------
|------------>
| Date: |
|------------>

>----------
|09/29/2009 09:35 PM
|

>----------
|------------>
| Subject: |
|------------>

>----------
|dunkard creek discussion
|

>----------

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US
|

>----------
|------------>
| To: |

|------------>

>----------
---------- |
  |<cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John
Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David
McGuigan/R3/USEPA/US@EPA,|
  |John Arway <jarway@cub.kcnet.org>, curban@state.pa.us,
teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov,
Larry |
  |Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu,
Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, |
  |Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A"
<Michael.A.Zeto@wv.gov>
|

>----------
---------- |
|------------>
| Date: |
|------------>

>----------
---------- |
  |09/14/2009 07:40 PM
|

>----------
---------- |
|------------>
| Subject: |
|------------>

>----------
---------- |
  |dunkard creek update
|

>----------
---------- |

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

FW: P parvum paper

Campbell, Patrick V To: Louis Reynolds 10/02/2009 01:20 PM

Think frank pushed the wrong button…

From: Frank Jernejcic [mailto:frankjernejcic@wvdnr.gov]
Sent: Friday, October 02, 2009 12:49 PM
To: Campbell, Patrick V
Subject: RE: P parvum paper

Lou: I am on vacation on the 13th. Frank.

-----Original Message-----
From: Campbell, Patrick V [mailto:Patrick.V.Campbell@wv.gov]
Sent: Friday, October 02, 2009 8:00 AM
To: Frank Jernejcic
Subject: FW: P parvum paper

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 8:56 PM
To: Bergdale.Amy@epamail.epa.gov; c-nwelte@state.pa.us; cbrethauer@state.pa.us; curban@state.pa.us; Borsuk.Frank@epamail.epa.gov; Jernejcic, Frank; Pond.Greg@epamail.epa.gov; Clayton, Janet; John Arway; jarway@state.pa.us; Hedrick, Jim; Forren.John@epamail.epa.gov; Wirts, John C; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Campbell, Patrick V; rspear@state.pa.us; teerod@wavestream.net; vicki_blazer@usgs.gov
Subject: P parvum paper

Amy Bergdale found this - sorry if you have already seen this, or its already been sent.

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

---- Forwarded by Louis Reynolds/R3/USEPA/US on 10/01/2009 08:48 PM ----

From: Louis Reynolds/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Cc: Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, John Arway <jarway@cub.kcnet.org>, jarway@state.pa.us, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>
Date: 10/01/2009 03:20 PM
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Cc: Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway <jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,

vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date: 10/01/2009 02:43 PM

Subject: Re: dunkard creek discussion - rescheduled

Because the Mon River Water Quality Forum is on Friday, we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: cbrethauer@state.pa.us, curban@state.pa.us, John Arway <jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, c-nwette@state.pa.us, frankjernejcic@wvdnr.gov, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date: 09/29/2009 09:35 PM

Subject: dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion - rescheduled

Welte, Nevin to Louis Reynolds 10/02/2009 02:51 PM

History: This message has been replied to.

Lou,

Monday or Tuesday next week will work best for me . I will be on vacation the week of October 12.

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; John Arway; Arway, John; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From:

Louis Reynolds/R3/USEPA/US

To:

Louis Reynolds/R3/USEPA/US@EPA

Cc:

Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway <jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date:

10/01/2009 02:43 PM

Subject:

Re: dunkard creek discussion - rescheduled

Because the Mon River Water Quality Forum is on Friday , we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From:

Louis Reynolds/R3/USEPA/US

To:

cbrethauer@state.pa.us, curban@state.pa.us, John Arway <jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date:

|------------>

>----------
|09/29/2009 09:35 PM

>----------
| Subject: |
|------------>

>----------
|dunkard creek discussion

>----------

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

>----------
|<cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA,|
|John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry
|Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, |
|Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

>----------
|------------>
| Date: |
|------------>

>----------
|09/14/2009 07:40 PM

>----------
|------------>
| Subject: |
|------------>

>----------
|dunkard creek update

>----------

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion - rescheduled

Louis Reynolds to Welte, Nevin

10/05/2009 07:43 AM

Nevin,

Frank J and possibly Janet Clayton will be here in Wheeling from 1-3 today to talk about the kills. This is because they wanted to touch base ASAP and cannot, like you, make next weeks meeting.

Give me a call or just respond to this email.

We are really easy to find in Wheeling - here is a map. Lots of metered parking on the street. You will need to call me to get access to the building. Call my cell if you do not get my office below

Cell: 412-956-5508

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Welte, Nevin" Lou, Monday or Tuesday next week will work be... 10/02/2009 02:51:36 PM

From: "Welte, Nevin" <c-nwelte@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/02/2009 02:51 PM
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Lou,

Monday or Tuesday next week will work best for me . I will be on vacation the week of October 12.

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; John Arway; Arway, John; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US@EPA

>----------
|------------>
| Cc: |
|------------>

>----------
|Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, |frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway |<jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret |Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, |vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

>----------
|------------>
| Date: |
|------------>

>----------
|10/01/2009 02:43 PM

>----------
|------------>
| Subject: |
|------------>

>----------
|Re: dunkard creek discussion - rescheduled

>----------

Because the Mon River Water Quality Forum is on Friday , we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>

From:
Louis Reynolds/R3/USEPA/US

To:
cbrethauer@state.pa.us, curban@state.pa.us, John Arway <jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

Date:
09/29/2009 09:35 PM

Subject:
dunkard creek discussion

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From:
Louis Reynolds/R3/USEPA/US

To:
<cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date:

>----------
---------- |
|09/14/2009 07:40 PM
|

>----------
---------- |
|---------->
| Subject: |
|---------->

>----------
---------- |
|dunkard creek update
|

>----------
---------- |

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Directions

Louis Reynolds to: Welte, Nevin 10/05/2009 07:44 AM

[attachment "directions_r3whl.pdf" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: Dunkard Creek Discussion- Rescheduled for October 13.

Janet Clayton to Louis Reynolds 10/05/2009 09:03 AM

on my schedule

Janet L. Clayton
Wildlife Diversity Biologist II
WVDNR
PO Box 67
Elkins, WV 26241

304-637-0245 x 2010

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Friday, October 02, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; c-nwelte@state.pa.us; cbrethauer@state.pa.us; curban@state.pa.us; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@wvdnr.gov; jarway@state.pa.us; John Arway; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; rspear@state.pa.us; teerod@wavestream.net; vicki_blazer@usgs.gov
Subject: Dunkard Creek Discussion - Rescheduled for October 13.

Because early next week was a bit too soon to gather everyone together, we are going to meet at the Wheeling Field Office on Tuesday October 13 from 10 am until 3 or so. I will send details and agenda later.

Have a good weekend.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion- rescheduled

Welte, Nevin to Louis Reynolds 10/05/2009 09:24 AM

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, October 05, 2009 7:44 AM
To: Welte, Nevin
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Nevin,

Frank J and possibly Janet Clayton will be here in Wheeling from 1-3 today to talk about the kills. This is because they wanted to touch base ASAP and cannot, like you, make next weeks meeting.

Give me a call or just respond to this email.

We are really easy to find in Wheeling - here is a map. Lots of metered parking on the street. You will need to call me to get access to the building. Call my cell if you do not get my office below

Cell: 412-956-5508

Lou Reynolds
USEPA Region III
Freshwater Biology Team

1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Welte, Nevin" <c-nwelte@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/02/2009 02:51 PM
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

---

Lou,

Monday or Tuesday next week will work best for me . I will be on vacation the week of October 12.

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; John Arway; Arway, John; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US@EPA

>----------
|------------>
| Cc: |
|------------>

>----------
|Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, |
|frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway |
|<jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret |
|Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, |
|vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

>----------
|------------>
| Date: |

|------------>

>----------
---------- |
|10/01/2009 02:43 PM
|

>----------
---------- |
|------------>
| Subject: |
|------------>

>----------
---------- |
|Re: dunkard creek discussion - rescheduled
|

>----------
---------- |

Because the Mon River Water Quality Forum is on Friday , we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
---------- |
|Louis Reynolds/R3/USEPA/US
|

>----------
---------- |
|------------>
| To: |
|------------>

>----------

---------- |
|cbrethauer@state.pa.us, curban@state.pa.us, John Arway
<jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA,
john.c.wirts@wv.gov, |
|Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov, |
|janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us,
Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank |
|Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy
Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret
|
|Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov
<vicki_blazer@usgs.gov>
|

>----------
---------- |
|------------>
| Date: |
|------------>

>----------
---------- |
|09/29/2009 09:35 PM
|

>----------
---------- |
|------------>
| Subject: |
|------------>

>----------
---------- |
|dunkard creek discussion
|

>----------
---------- |

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share . We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion - rescheduled

Welte, Nevin to Louis Reynolds 10/05/2009 09:27 AM

Cc: "Arway, John", "Urban, Chris"

History: This message has been replied to.

Lou,

I'm not able to come to Wheeling today. I discussed the issue with John Arway and there's a possibility someone from PFBC will be able to make it to a meeting next week.

Hope the Dunkard Creek issues are getting clearer!

Nevin

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, October 05, 2009 7:44 AM
To: Welte, Nevin
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Nevin,

Frank J and possibly Janet Clayton will be here in Wheeling from 1-3 today to talk about the kills. This is because they wanted to touch base ASAP and cannot, like you, make next weeks meeting.

Give me a call or just respond to this email.

We are really easy to find in Wheeling - here is a map. Lots of metered parking on the street. You will need to call me to get access to the building. Call my cell if you do not get my office below

Cell: 412-956-5508

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Welte, Nevin" <c-nwelte@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/02/2009 02:51 PM
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Lou,

Monday or Tuesday next week will work best for me . I will be on vacation the week of October 12.

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; John Arway; Arway, John; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US@EPA

>----------
|------------>
| Cc: |
|------------>

>----------
|Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, Frank Borsuk/R3/USEPA/US@EPA, |
|frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway |
|<jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret |
|Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
|vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>

>----------
|------------>
| Date: |
|------------>

>----------
|10/01/2009 02:43 PM

>----------
|------------>
| Subject: |
|------------>

>----------
|Re: dunkard creek discussion - rescheduled

>----------

Because the Mon River Water Quality Forum is on Friday , we need to reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US

>----------
|------------>
| To: |
|------------>

>----------

|cbrethauer@state.pa.us, curban@state.pa.us, John Arway
<jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA,
john.c.wirts@wv.gov,
|Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov,
|janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us,
Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank
|Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy
Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret
|
|Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov
<vicki_blazer@usgs.gov>
|

>----------
| Date: |
|---------->

>----------
|09/29/2009 09:35 PM
|

>----------
| Subject: |
|---------->

>----------
|dunkard creek discussion
|

>----------

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|---------->
| From: |
|---------->

>----------
|Louis Reynolds/R3/USEPA/US
|

>----------
|---------->
| To: |
|---------->

>----------
|<cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John
Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David
McGuigan/R3/USEPA/US@EPA,|
|John Arway <jarway@cub.kcnet.org>, curban@state.pa.us,
teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov,
Larry |
|Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu,
Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA,
|Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A"
<Michael.A.Zeto@wv.gov>
|

>----------
|---------->
| Date: |
|---------->

>----------
|09/14/2009 07:40 PM
|

>----------
|---------->
| Subject: |
|---------->

>----------

|dunkard creek update

>---

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: CLARIFICATION: dunkard creek discussion - rescheduled

Louis Reynolds to Welte, Nevin 10/05/2009 10:06 AM

I will let you know how the discussions go.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Welte, Nevin" Lou, I'm not able to come to Wheeling today. I di... 10/05/2009 09:27:58 AM

From: "Welte, Nevin" <c-nwelte@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Cc: "Arway, John" <jarway@state.pa.us>, "Urban, Chris" <curban@state.pa.us>
Date: 10/05/2009 09:27 AM
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Lou,

I'm not able to come to Wheeling today. I discussed the issue with John Arway and there's a possibility someone from PFBC will be able to make it to a meeting next week.

Hope the Dunkard Creek issues are getting clearer!

Nevin

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, October 05, 2009 7:44 AM
To: Welte, Nevin
Subject: RE: CLARIFICATION: dunkard creek discussion - rescheduled

Nevin,

Frank J and possibly Janet Clayton will be here in Wheeling from 1-3 today to talk about the kills.

This is because they wanted to touch base ASAP and cannot, like you, make next weeks meeting.

Give me a call or just respond to this email.

We are really easy to find in Wheeling - here is a map. Lots of metered parking on the street. You will need to call me to get access to the building. Call my cell if you do not get my office below

Cell: 412-956-5508

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From:	"Welte, Nevin" <c-nwelte@state.pa.us>
To:	Louis Reynolds/R3/USEPA/US@EPA
Date:	10/02/2009 02:51 PM
Subject:	RE: CLARIFICATION: dunkard creek discussion - rescheduled

---

Lou,

Monday or Tuesday next week will work best for me . I will be on vacation the week of October 12.

Nevin

Nevin Welte
Malacologist/Nongame Biologist
Pennsylvania Fish & Boat Commission
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823

412-586-2334
c-nwelte@state.pa.us

-----Original Message-----

From: Reynolds.Louis@epamail.epa.gov [
mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 01, 2009 3:21 PM
To: Reynolds.Louis@epamail.epa.gov
Cc: Bergdale.Amy@epamail.epa.gov; Welte, Nevin; Brethauer, Charles; Urban, Chris; Borsuk.Frank@epamail.epa.gov; frankjernejcic@wvdnr.gov; Pond.Greg@epamail.epa.gov; janetclayton@; John Arway; Arway, John; jimhedrick@wvdnr.gov; Forren.John@epamail.epa.gov; john.c.wirts@wv.gov; Krock.Kelly@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov; Rivera.Nina@epamail.epa.gov; Patrick.V.Campbell@wv.gov; Spear, Richard; teerod@wavestream.net; vicki_blazer@
Subject: CLARIFICATION: dunkard creek discussion - rescheduled

My brain is a little fried.

Here are three times:

1. Monday, October 5 : 1300-1600
2. Tuesday, October 6: 1000-1400
3. Tuesday, October 13: 1000-1400

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|------------>
| From: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US
|

>----------
|------------>
| To: |
|------------>

>----------
|Louis Reynolds/R3/USEPA/US@EPA
|

>----------
|------------>
| Cc: |
|------------>

>----------

|Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us,
cbrethauer@state.pa.us, curban@state.pa.us, Frank
Borsuk/R3/USEPA/US@EPA,
|frankjernejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA,
janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us,
John Arway
|<jarway@cub.kcnet.org>, jimhedrick@wvdnr.gov, John
Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly
Krock/R3/USEPA/US@EPA, Margaret
|Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA,
Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
|
|vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>
|

>---
---|
|---------->
| Date: |
|---------->

>---
---|
|10/01/2009 02:43 PM
|

>---
---|
|---------->
| Subject: |
|---------->

>---
---|
|Re: dunkard creek discussion - rescheduled
|

>---
---|

Because the Mon River Water Quality Forum is on Friday , we need to
reschedule our meeting for Monday 1 - 4 or Tuesday from 10 am till 2 pm.

Please let me know which will work (if any).

Thanks

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

|---------->
| From: |
|---------->

>---
---|
|Louis Reynolds/R3/USEPA/US
|

>---
---|
|---------->
| To: |
|---------->

>---
---|
|cbrethauer@state.pa.us, curban@state.pa.us, John Arway
<jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA,
john.c.wirts@wv.gov,
|Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net,
c-nwelte@state.pa.us, frankjernejcic@wvdnr.gov,
|janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us,
Nina Rivera/R3/USEPA/US@EPA, jimhedrick@wvdnr.gov, Frank
|Borsuk/R3/USEPA/US@EPA, Kelly Krock/R3/USEPA/US@EPA, Amy
Bergdale/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA, Margaret
|
|Passmore/R3/USEPA/US@EPA, vicki_blazer@usgs.gov
<vicki_blazer@usgs.gov>
|

>---
---|
|---------->
| Date: |
|---------->

>---
---|
|09/29/2009 09:35 PM
|

>---
---|
|---------->
| Subject: |
|---------->

>---
---|
|dunkard creek discussion
|

>---
---|

Hi everyone.

This is long overdue, but I would like to have everyone who was out on this kill to come over to Wheeling for a discussion of the kill and proximate causes.

Bring along any data that you are willing to share. We will also try to patch in some folks from other states who have dealt with similar kinds of kills.

Lets meet at our office in Wheeling, on October 9 (next Friday) from 10 am till about 2 pm. Bring along a lunch and we'll brown bag it.

RSVP to me please.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: Louis Reynolds/R3/USEPA/US

To: <cbrethauer@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA, rspear@state.pa.us, David McGuigan/R3/USEPA/US@EPA, John Arway <jarway@cub.kcnet.org>, curban@state.pa.us, teerod@wavestream.net, john.c.wirts@wv.gov, Patrick.V.Campbell@wv.gov, Larry Merrill/R3/USEPA/US@EPA, Cindy_Tibbott@fws.gov, PZIEMKIE@wvu.edu, Jeffrey Lapp/R3/USEPA/US@EPA, Jessica Martinsen/R3/USEPA/US@EPA, Helene Drago/R3/USEPA/US@EPA, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>

Date: 09/14/2009 07:40 PM

Subject: dunkard creek update

No map is included with this. I can't figure out how to compress the map and no one wants an 18mb attachment. (My apologies to anyone who got the previous 18mb attachment.)

[attachment "dunkard.doc" deleted by Louis Reynolds/R3/USEPA/US]

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Fw: Golden algae samples from WV

Louis Reynolds to john.c.wirts, Campbell, Patrick V, Patrick V 10/06/2009 09:01 AM

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/06/2009 08:57 AM -----

From:	Dave Hambright <dhambright@ou.edu>
To:	Louis Reynolds/R3/USEPA/US@EPA
Date:	10/06/2009 07:52 AM
Subject:	Re: Golden algae samples from WV

Hi Lou,
As long as we know the volume, we can back calculate densities.
It is best to freeze immediately, but limitations are real, so cold and dark will work until you can freeze.
TDS vs chloride vs ??? this is a hard question at the moment. There are strong relationships between golden algal abundances and salinity, as well as with chloride. I imagine that you could find equally strong relationships with other ions as well - but since they are all auto-correlated, such relationships tell us little. Also, there are always outliers that complicate the picture - we see high abundances often at some of the lowest salinities and vice versa.
Hopefully as we learn more about the molecular makeup of the toxins and the genetic and biochemical regulatory mechanisms involved, we'll be able to pinpoint the ion(s) involved. In the meantime, if there is a way to limit TDS in Dunkard Creek, I'd suggest it is worth a try.
One thing we might consider in the future is growing ga under different salinity compositions and looking at growth rates, competitive abilities, toxin production, etc. If we can get some of the Dunkard Creek ga in culture, this might be something we could do. First we want to examine the ITS1 region to determine if the Dunkard Creek strain is the same as we have here. If so, things will be simpler, if not, more complicated, but also more interesting.
We should have some results for you guys later today, so I'll be in touch.
Dave

On Oct 5, 2009, at 3:22 PM, Reynolds.Louis@epamail.epa.gov wrote:

> Dave,
>
> Wanted to let you know, the first site that was sampled that day was MDP. I filtered 250ml at that site and then filtered 150 ml at all subsequent sites.
>
> Do the filters need to be frozen immediately (on dry ice) or is cool on ice ok until we can get to freezer and then dry ice to you?
>
> I think we are most concerned with other streams at this point. Has it moved from Dunkard?
>
> One question we had concerning this point is the make-up of the ions in the water. Is this critter chloride dependant or will any TDS do?
>
> Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From:	Dave Hambright <dhambright@ou.edu>
To:	"Wirts, John C" <John.C.Wirts@wv.gov>
Cc:	Louis Reynolds/R3/USEPA/US@EPA, <mhartle@state.pa.us>
Date:	10/05/2009 11:42 AM
Subject:	Re: Golden algae samples from WV

Morning John,

Don't worry about the coordination - the good thing is that several of you were on top of the event - so it didn't go unnoticed. That would have been the tragedy.
Since you guys will be meeting together this week, I've taken the liberty to copy Lou Reynolds and Mark Hartle on this message.

Karen will run the last of the PCR samples (from Mark Hartle) today (and will rerun the previous samples at the same time for comparison). The toxin samples were run over the weekend and will continue today - should have some prelim info soon.

For future billing - should we go that route - the address you have is fine - the only thing we'll need to give you is the departmental budget number. Karen will get an estimate to me sometime today.

Some interesting tidbits - some of you have asked me about salinity - as it turns out, the

samples we received with the highest density of Prymnesium (WANA) also had the lowest salinity (~1.6 PSU). Other samples with higher salinities (up to ~6PSU) had much lower densities of Prymnesium. Also interesting - here in OK, we get fish kills at around 50K cells per mL and maximum bloom densities of <200K cells per mL. The density of Prymnesium in the WANA sample was over 500K cells per mL!!! This was the sample that sat for some time in a cooler, so it is unclear whether the density reflects the real bloom in Dunkard Creek or is an artefact of storage.

I'll be back in touch with more as the data come in.

Best,
Dave

On Oct 5, 2009, at 10:19 AM, Wirts, John C wrote:

Thanks Dave.
We (EPA, PA and us) should be doing a better job of coordinating our efforts – we have a joint meeting planned for early next week.
I would say your 'bad news' confirmation is what we expected.
We'll go ahead and start collecting water samples (and filtering) – maybe around 20 samples. I don't suspect we'll need to establish a long-term monitoring plan, but definitely a good idea to have something figured out in case the need arises.
I looked into what it would take to get money to you (unfortunately one the more difficult aspects of my job) and found that OU is already registered with our payment system. Could your lab accept payment thru the main campus? (the address we have is for 560 Parrington Oval, Norman.) If not, we would have to complete a couple forms- no big deal, but obviously easier to utilize what's already set up.
Thanks again for your help with this, John

From: Dave Hambright [mailto:dhambright@ou.edu]
Sent: Friday, October 02, 2009 4:27 PM
To: Wirts, John C
Subject: Re: Golden algae samples from WV

Hi John,
All samples arrived in good shape (as did samples from others in your area - PA Fish and Boat, PA EPA). It appears you guys are sampling the same places. That's alright for the time being, since the samples are from different times.
Okay - so the "bad" news first: most samples scored positive hits using PCR, and microscope and fluorescence-specific flow cytometry all confirmed *Prymnesium parvum* . Whole water samples are being processed this evening and we should have numbers on a couple toxins by early in the week.

We're a bit short-handed at the moment (various illnesses and family complications), but I hope to get a more formal report to you guys early in the week.

I guess this is the "good" news" --- As for more samples, we could certainly assist with a simple monitoring program similar to what we do here in Oklahoma and Texas - basically, a GF/C filter with a known volume of water passed through and then frozen. Using qPCR, the limit of detection is about 5 orders of magnitude lower (i.e.,better) than with the microscope, and identification is certain. I can get my lab manager to run up a cost estimate per sample. Off hand I can't remember our cost (we'd charge you the same plus IDC), but I think our PCR runs for the OK state black bass project run ~$10/sample for material, labor, and IDC. Don't hold me to it, but I think qPCR is cheaper. I'll get back to you.

In the meantime, if you wish to start a monitoring/survey program, you can stockpile the filters (as long as they are individually wrapped in foil and frozen), and if we can do them, time will not be lost. Filters have the advantage over preserved or fresh samples simply because they have a long shelf life and are much cheaper to ship; the limit of detection is also better. Once the PCR identifies that Prymnesium is presence, other types of samples become more useful.

Will be in touch,
Dave

On Oct 2, 2009, at 10:19 AM, Wirts, John C wrote:

Dave,
Did our samples show up? Decent condition?

Interested in looking a more samples?
We are collecting samples from streams that have not experienced fish kills and hope to determine if P parvum is found in any of these streams.
John Rogers from Clemson apparently has samples with 10,000 cells / mL from areas near the kill, but with no reported problems.
We are trying to gain a better understanding of how widespread the algae is.

How much work is it to determine 'absence' or at least be able to say that if present its below a concentration of X?
By later this morning we'll have 6 samples from various stream types where we suspect no golden algae.
Would you like to look at these samples and if so, should we preserve with Lugols or send unpreserved?

Thanks, John

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060

c (304) 389-7625
john.c.wirts@wv.gov

ESC Dunkard Creek Workspace

Louis Reynolds to Brethauer, Charles, john.c.wirts, Campbell, Patrick V, Patrick V, rspear 10/06/2009 02:18 PM

This short list are the guinea pigs for the EPA Environmental Science Connector site called Dunkard Creek Fish Kill.

The first thing you all must do is to get your epa username and password.

some of you might already have access to the ESC. If so, you just need to go in and request access to the site.

If not, click on this link:

http://oaspub.epa.gov/portal/page/portal/ESConnector/CNTR_ESC/ESCHOME/MYWORKBENCH?escSelectedProjectId=28150

on the bottom of this page, CLICK on REQUEST ACCESS TO EPA PORTAL

Fill out that form. At the bottom of the form is a drop down list. SELECT COMMUNITY OR APPLICATION Select ENVIRONMENTAL SCIENCE CONNECTOR

lets try to get that far...

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/06/2009 02:10 PM -----

From: Matthew Colip/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/06/2009 02:10 PM
Subject: Fw: ESC Dunkard Creek Workspace

----- Forwarded by Matthew Colip/R3/USEPA/US on 10/06/2009 02:06 PM -----

Matthew Colip/R3/USEPA/US

09/23/2009 03:55 PM

To Chad Harsh/R3/USEPA/US
cc
Subject ESC Dunkard Creek Workspace

Chad,

Go to the link below, you'll be prompted for your LAN username and password.

Getting your non-EPA partners into the Portal shouldn't be that difficult, get back in touch with me whenever is convenient for you.

Matt

Matthew R. Colip
Biologist
Office of Program Support (3WP60)
Water Protection Division
U.S. Environmental Protection Agency, Region 3
1650 Arch St, Philadelphia, PA 19103
Phone: (215)-814-5439
Fax: (215)-814-2301

RE: ESC Dunkard Creek Workspace

Campbell, Patrick V to Louis Reynolds 10/06/2009 02:30 PM

I had to drop the "epamail" from your email address, but then it took me on to the – await approval stage.

From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Tuesday, October 06, 2009 2:18 PM
To: Brethauer, Charles; Wirts, John C; Campbell, Patrick V; Campbell, Patrick V; Campbell, Patrick V; rspear@state.pa.us
Subject: ESC Dunkard Creek Workspace

This short list are the guinea pigs for the EPA Environmental Science Connector site called Dunkard Creek Fish Kill.

The first thing you all must do is to get your epa username and password.

some of you might already have access to the ESC. If so, you just need to go in and request access to the site.

If not, click on this link:

http://oaspub.epa.gov/portal/page/portal/ESConnector/CNTR_ESC/ESCHOME/MYWORKBENCH?escSelectedProjectId=28150

on the bottom of this page, CLICK on REQUEST ACCESS TO EPA PORTAL

Fill out that form. At the bottom of the form is a drop down list. SELECT COMMUNITY OR APPLICATION Select ENVIRONMENTAL SCIENCE CONNECTOR

lets try to get that far...

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/06/2009 02:10 PM -----

From: Matthew Colip/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/06/2009 02:10 PM
Subject: Fw: ESC Dunkard Creek Workspace

----- Forwarded by Matthew Colip/R3/USEPA/US on 10/06/2009 02:06 PM -----

Matthew Colip/R3/USEPA/US

09/23/2009 03:55 PM

To Chad Harsh/R3/USEPA/US
cc
Subject ESC Dunkard Creek Workspace

Chad,

Go to the link below, you'll be prompted for your LAN username and password.

Getting your non-EPA partners into the Portal shouldn't be that difficult, get back in touch with me whenever is convenient for you.

Matt

Matthew R. Colip
Biologist
Office of Program Support (3WP60)
Water Protection Division
U.S. Environmental Protection Agency, Region 3
1650 Arch St, Philadelphia, PA 19103
Phone: (215)-814-5439
Fax: (215)-814-2301

Fw: Dunkard Creek Update

Louis Reynolds to patrick.v.campbell, Patrick V, john.c.wirts 10/07/2009 01:42 PM

Not sure if you have seen this. a second round of algae sampling should be done here. I would like to do it tomorrow, but I am not in today and doubt I could do it tomorrow.

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/07/2009 01:40 PM -----

From: Chad Harsh/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, John Forren/R3/USEPA/US@EPA
Date: 10/07/2009 12:56 PM
Subject: Fw: Dunkard Creek Update

I will continue to forward messages from Consol as I get them.

Chad

----- Forwarded by Chad Harsh/R3/USEPA/US on 10/07/2009 12:03 PM -----

From: "Geary, Stan" <StanGeary@consolenergy.com>
To: "Brethauer, Charles" <cbrethauer@state.pa.us>, "jarway@state.pa.us" <jarway@state.pa.us>, Chad Harsh/R3/USEPA/US@EPA
Cc: "Herschlag, Bruce" <bherschlag@state.pa.us>, Nina Rivera/R3/USEPA/US@EPA, "Harper, Samuel" <saharper@state.pa.us>, "Stares, Diana" <dstares@state.pa.us>, Judith Hykel/R3/USEPA/US@EPA
Date: 10/07/2009 12:02 PM
Subject: Dunkard Creek Update

Ladies and Gentlemen:

Following is a summary of observations of Dunkard Creek that were made yesterday by a representative of our consultant, Potesta & Associates:

The stream looked very good from St. Leo all the way to Mason-Dixon Park. The water still has a dark brown color to it, but it is clear enough to see the bottom in all but the very deepest holes. Water levels are up since last week.

Conductivity, pH, and TDS have all dropped significantly in this stretch. Two dead ducks were

observed at the upstream sampling point for Outlet 005 in Wana. They were the white ones with yellow bill and feet. They hadn't been dead very long as there weren't many bugs on them yet. Still not seeing any signs of life or death in Velone Shaft pond.

From Mason-Dixon Park to Bobtown, the water is beginning to look similar to what it did when Potesta first came up at the beginning of September. There were large numbers of fish trying to get up Shannon's Run in Mount Morris, PA. (Mostly redhorse suckers, minnows, and two large musky.) They all looked stressed, struggling to breathe. Only saw a few dead minnows though.

There were numerous dead fish from the AMD seep in Bobtown down to the end of Beal Rd. Access isn't possible past this gate so it's hard to tell how far the dead ones go. (Redhorse, hogsuckers, smallmouth bass, and drum were all dead.)

Water samples were collected at 15 sites, adding a site in Miracle Run and a site downstream of Outlet 005to the previous sampling locations.

Stan Geary
Senior Counsel
CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, PA 15317
Phone: (724) 485-4036
Fax: (724) 485-4837
Cell: (412) 897-9221
Email: stangeary@consolenergy.com

10/6/09 Dunkard Creek Update

Campbell, Patrick V to Wirts, John C, Louis Reynolds 10/07/2009 01:53 PM

From: Mandirola, Scott G
Sent: Wednesday, October 07, 2009 1:41 PM
To: Campbell, Patrick V
Subject: Fw: Dunkard Creek Update

Message sent from my Blackberry!

From: Power, Christopher
To: Mandirola, Scott G
Cc: Clarke, Thomas L; Huffman, Randy C; Zeto, Michael A; Hughes, Jennifer L
Sent: Wed Oct 07 12:27:48 2009
Subject: Dunkard Creek Update

Following is a summary of observations of Dunkard Creek that were made yesterday by a representative of our consultant, Potesta & Associates:

The stream looked very good from St. Leo all the way to Mason-Dixon Park. The water still has a dark brown color to it, but it is clear enough to see the bottom in all but the very deepest holes. Water levels are up since last week.

Conductivity, pH, and TDS have all dropped significantly in this stretch. Two dead ducks were observed at the upstream sampling point for Outlet 005 in Wana. They were the white ones with yellow bill and feet. They hadn't been dead very long as there weren't many bugs on them yet. Still not seeing any signs of life or death in Velone Shaft pond.

From Mason-Dixon Park to Bobtown, the water is beginning to look similar to what it did when Potesta first came up at the beginning of September. There were large numbers of fish trying to get up Shannon's Run in Mount Morris, PA. (Mostly redhorse suckers, minnows, and two large musky.) They all looked stressed, struggling to breathe. Only saw a few dead minnows though.

There were numerous dead fish from the AMD seep in Bobtown down to the end of Beal Rd. Access isn't possible past this gate so it's hard to tell how far the dead ones go. (Redhorse, hogsuckers, smallmouth bass, and drum were all dead.)

Water samples were collected at 15 sites, adding a site in Miracle Run and a site downstream of Outlet 005to the previous sampling locations.

Dinsmore & Shohl LLP
ATTORNEYS

Christopher B. Power
Partner
900 Lee Street; Huntington Square; Suite 600; Charleston, WV 25301
Phone: (304) 357-0902; Fax: (304) 357-0919; Cell: (304) 541-0435
christopher.power@dinslaw.com; www.dinslaw.com

Assistant:
Sabine M. Meadows (304) 357-0914; sabine.meadows@dinslaw.com

Reminder - Dunkard Creek Fish Kill meeting in Wheeling WV on Tuesday October 13, 10:00 - 3:00

Louis Reynolds to: Louis Reynolds 10/07/2009 02:09 PM

Cc: Amy Bergdale, c-nwelte, cbrethauer, curban, frankjemejcic, Greg Pond, janetclayton@wvdnr.gov, John Arway, jarway, John Forren, john.c.wirts, Kelly Krock, Margaret Passmore, Nina Rivera, Patrick.V.Campbell, rspear, teerod

Just a reminder that this meeting is indeed happening. Bring lunch and we will continue the meeting through lunch. Directions to the office are attached. Once in the building go to the third floor offices. There is plenty of street parking but at 2 hour meters. This will make for convenient break times during the meeting.

Please come with data and or ideas, opinions. I hope to have a open and fruitful discussion.

Thanks,

Lou

directions_r3whl.pdf

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

Louis Reynolds Because early next week was a bit too soon to g... 10/02/2009 03:24:19 PM

From: Louis Reynolds/R3/USEPA/US
To: Louis Reynolds/R3/USEPA/US@EPA
Cc: Amy Bergdale/R3/USEPA/US@EPA, c-nwelte@state.pa.us, cbrethauer@state.pa.us, curban@state.pa.us, frankjemejcic@wvdnr.gov, Greg Pond/R3/USEPA/US@EPA, janetclayton@wvdnr.gov <janetclayton@wvdnr.gov>, jarway@state.pa.us, John Arway <jarway@cub.kcnet.org>, John Forren/R3/USEPA/US@EPA, john.c.wirts@wv.gov, Kelly Krock/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, Nina Rivera/R3/USEPA/US@EPA, Patrick.V.Campbell@wv.gov, rspear@state.pa.us, teerod@wavestream.net, vicki_blazer@usgs.gov <vicki_blazer@usgs.gov>
Date: 10/02/2009 03:24 PM
Subject: Dunkard Creek Discussion - Rescheduled for October 13.

Because early next week was a bit too soon to gather everyone together, we are going to meet at the Wheeling Field Office on Tuesday October 13 from 10 am until 3 or so. I will send details and agenda later.

Have a good weekend.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

FW: Request for help from WV - Pyrmnesium parvum salinity requirements

Campbell, Patrick V to: Mandirola, Scott G, Carico, Charles M, Swiger, Bradley C, Montali, David A, Zeto, Michael A 10/07/2009 11:27 PM

Cc: Louis Reynolds

History: This message has been forwarded.

I'm thinking this isn't what we wanted to hear for CaS04 dominated waters (e.g Coal River).

From: Wirts, John C
Sent: Wed 10/7/2009 8:18 PM
To: Campbell, Patrick V
Subject: FW: Request for help from WV - Pyrmnesium parvum salinity requirements

straight from the researcher's keyboard...
From: Grover, James P [mailto:grover@uta.edu]
Sent: Wed 10/7/2009 4:18 PM
To: Wirts, John C
Cc: Brooks Bryan; Daniel Roelke
Subject: RE: Request for help from WV - Pyrmnesium parvum salinity requirements

John,

In partial answer to your question, I've attached two papers from our group.

Basically, in lab studies on P. parvum, we see slow growth at 0.1 to 0.2 per day, when salinity is 0.5 g / liter, and temperature is near 20 C. Growth is stronger (0.3 - 0.4 per day) for the same temperature when salinity is 1 g / liter. With higher salinities (2 - 4 g / liter), growth is strong (0.5 - 0.7 per day) for temperatures from 20 - 30 degrees. We haven't done experiments that used salinity levels more closely resolved than 0.5, 1, and 2 g / liter, and results at low salinity do depend on temperature. But the absolute limit for growth is probably about 0.5 g / liter, and more than than is probably needed for sufficient growth to produce a bloom.

Natural populations in competition with other algae probably need to grow at about 0.2 - 0.4 per day, and here in Texas we tend to see blooms if salinity is above about 1 - 1.5 g / liter as the population grows.

We have typically measured salinity in our work, rather than TDS. In many cases these quantities will be similar since a lot of the dissolved solids are ionic in most waters.

We have seen comparable growth in lab media with salt compositions based on seawater and in those with higher concentrations of divalent ions (Ca, Mg, HCO3, SO4) intended to mimic the inland waters of our region. But we haven't tried growing P. parvum in media with very low Na and Cl. Although we've never detected a statistically significant difference in growth based on ion composition, I still have the subjective impression that growth is a little better in media with proportionally more divalent cations than seawater. We and others have seen strong pH dependence in toxicity of P. parvum to fish (toxicity is higher for basic pH), and to the extent that waters rich in divalent cations tend to be alkaline this would be a concern. Ca concentration is also correlated to toxicity, since the hemolytic mechanism is driven by Ca fluxes. So I would be concerned with waters affected by discharges that elevated Ca concentrations.

I hope this information helps.

Jim

James P. Grover

Professor
Department of Biology
Program in Environmental and Earth Sciences
University of Texas at Arlington
Box 19498
Arlington TX 76019 USA
+817-272-2405 phone
+817-272-2855 fax
grover@uta.edu
http://www.uta.edu/biology/grover/index.htm

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Tuesday, October 06, 2009 12:07 PM
To: tomasc@uncw.edu; Meridith.Byrd@tpwd.state.tx.us; Pat.Tester@noaa.gov; kiesling@usgs.gov; Grover, James P; mark.vanderborgh@ncmail.net; jennifer.wolny@myfwc.com; loraine.fries@tpwd.state.tx.us
Cc: Campbell, Patrick V
Subject: Request for help from WV - Pyrmnesium parvum salinity requirements

Dear Golden Algae experts,
I've talked with most of you in the last week or two about a major fish kill on Dunkard Creek which flows along the West Virginia / Pennsylvania border. We have confirmation of P. parvum at all impacted sites at concentrations between 100,000 and a million cell/mL. This kill has most of the characteristics of the golden algae kills we've read and heard about. Our fish health expert with USGS says the fish clearly show impacts of a toxin.

Perhaps unique to our fish kill, our salinity is primarily coming from permitted discharges. **Thus, we are very interested in knowing if you have opinions or know of research that would provide insight into what minimum level of Total Dissolved Solids is required to keep P. parvum alive and/or competitive with other algae.**

Similarly we wonder if some minimum amount of Sodium Chloride is required, or can this algae survive in a TDS comprised of 100% Calcium Sulfate. In our kill situation we have both NaCl and CaSO4, but we are fearful for other waters which have only CaSO4.

Any advice or insight would be most appreciated...

Thanks, John

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov


B2009LO.pdf


B2007JP.pdf

Fw: Request for help from WV - Pyrmnesium parvum salinity requirements

Louis Reynolds to rkime, Chalfant, Brian, wbotts 10/08/2009 08:48 AM

happy reading...

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/08/2009 08:42 AM -----

From:	"Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To:	"Mandirola, Scott G" <Scott.G.Mandirola@wv.gov>, "Carico, Charles M" <Charles.M.Carico@wv.gov>, "Swiger, Bradley C" <Bradley.C.Swiger@wv.gov>, "Montali, David A" <David.A.Montali@wv.gov>, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>
Cc:	Louis Reynolds/R3/USEPA/US@EPA
Date:	10/07/2009 11:27 PM
Subject:	FW: Request for help from WV - Pyrmnesium parvum salinity requirements

I'm thinking this isn't what we wanted to hear for CaS04 dominated waters (e.g Coal River).

From: Wirts, John C
Sent: Wed 10/7/2009 8:18 PM
To: Campbell, Patrick V
Subject: FW: Request for help from WV - Pyrmnesium parvum salinity requirements

straight from the researcher's keyboard...
From: Grover, James P [mailto:grover@uta.edu]
Sent: Wed 10/7/2009 4:18 PM
To: Wirts, John C
Cc: Brooks Bryan; Daniel Roelke
Subject: RE: Request for help from WV - Pyrmnesium parvum salinity requirements

John,

In partial answer to your question, I've attached two papers from our group.

Basically, in lab studies on P. parvum, we see slow growth at 0.1 to 0.2 per day, when salinity is 0.5 g / liter, and temperature is near 20 C. Growth is stronger (0.3 - 0.4 per day) for the same temperature when salinity is 1 g / liter. With higher salinities (2 - 4 g / liter), growth is strong (0.5 - 0.7 per day) for temperatures from 20 - 30 degrees. We haven't done experiments that used salinity levels more closely resolved than 0.5, 1, and 2 g / liter, and results at low salinity do depend on temperature. But the absolute limit for growth is probably about 0.5 g / liter, and more than than is probably needed for sufficient growth to produce a bloom.

Natural populations in competition with other algae probably need to grow at about 0.2 - 0.4 per day, and here in Texas we tend to see blooms if salinity is above about 1 - 1.5 g / liter as the population grows.

We have typically measured salinity in our work, rather than TDS. In many cases these quantities will be similar since a lot of the dissolved solids are ionic in most waters.

We have seen comparable growth in lab media with salt compositions based on seawater and in those with higher concentrations of divalent ions (Ca, Mg, HCO3, SO4) intended to mimic the inland waters of our region. But we haven't tried growing P. parvum in media with very low Na and Cl. Although we've never detected a statistically significant difference in growth based on ion composition, I still have the subjective impression that growth is a little better in media with proportionally more divalent cations than seawater. We and others have seen strong pH dependence in toxicity of P. parvum to fish (toxicity is higher for basic pH), and to the extent that waters rich in divalent cations tend to be alkaline this would be a concern. Ca concentration is also correlated to toxicity, since the hemolytic mechanism is driven by Ca fluxes. So I would be concerned with waters affected by discharges that elevated Ca concentrations.

I hope this information helps.

Jim

James P. Grover

Professor
Department of Biology
Program in Environmental and Earth Sciences
University of Texas at Arlington
Box 19498
Arlington TX 76019 USA
+817-272-2405 phone
+817-272-2855 fax
grover@uta.edu
http://www.uta.edu/biology/grover/index.htm

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Tuesday, October 06, 2009 12:07 PM
To: tomasc@uncw.edu; Meridith.Byrd@tpwd.state.tx.us; Pat.Tester@noaa.gov; kiesling@usgs.gov; Grover, James P; mark.vanderborgh@ncmail.net; jennifer.wolny@myfwc.com; loraine.fries@tpwd.state.tx.us
Cc: Campbell, Patrick V
Subject: Request for help from WV - Pyrmnesium parvum salinity requirements

Dear Golden Algae experts,
I've talked with most of you in the last week or two about a major fish kill on Dunkard Creek which flows along the West Virginia / Pennsylvania border. We have confirmation of P. parvum at all impacted sites at concentrations between 100,000 and a million cell/mL. This kill has most of the characteristics of the golden algae kills we've read and heard about. Our fish health expert with USGS says the fish clearly show impacts of a toxin.

Perhaps unique to our fish kill, our salinity is primarily coming from permitted discharges. **Thus, we are very interested in knowing if you have opinions or know of research that would provide insight into**

what minimum level of Total Dissolved Solids is required to keep P. parvum alive and/or competitive with other algae.

Similarly we wonder if some minimum amount of Sodium Chloride is required , or can this algae survive in a TDS comprised of 100% Calcium Sulfate. In our kill situation we have both NaCl and CaSO4, but we are fearful for other waters which have only CaSO4.

Any advice or insight would be most appreciated...

Thanks, John

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

B2009LO.pdf B2007JP.pdf

meeting

Louis Reynolds to sleitkam 10/08/2009 10:34 AM

Steve,

Please send the report on Dunkard if you can.

The meeting will start on Tuesday at ~10 am. Bring lunch. There is metered parking on the street (2 hour meters - we can feed the meters at breaks).

Here are directions:

directions_r3whl.pdf

When you get to the office, come to the 3'rd floor and "buzz" the door the meeting will be there.

Thanks,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: Request for help from WV - Pyrmnesium parvum salinity requirements

Chalfant, Brian to Louis Reynolds 10/08/2009 01:39 PM

Thanks for this, Lou. I'm looking at our Dunkard bug stuff this afternoon, hopefully I'll have something for you before tomorrow becomes tomorrow. Do you have any pictures from Dunkard? The recent gill kill in particular?

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 08, 2009 8:48 AM
To: Kime, Rodney; Chalfant, Brian; Botts, William
Subject: Fw: Request for help from WV - Pyrmnesium parvum salinity requirements

happy reading...

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

----- Forwarded by Louis Reynolds/R3/USEPA/US on 10/08/2009 08:42 AM -----

From: "Campbell, Patrick V" <Patrick.V.Campbell@wv.gov>
To: "Mandirola, Scott G" <Scott.G.Mandirola@wv.gov>, "Carico, Charles M" <Charles.M.Carico@wv.gov>, "Swiger, Bradley C" <Bradley.C.Swiger@wv.gov>, "Montali, David A" <David.A.Montali@wv.gov>, "Zeto, Michael A" <Michael.A.Zeto@wv.gov>
Cc: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/07/2009 11:27 PM
Subject: FW: Request for help from WV - Pyrmnesium parvum salinity requirements

I'm thinking this isn't what we wanted to hear for CaS04 dominated waters (e.g Coal River).

From: Wirts, John C
Sent: Wed 10/7/2009 8:18 PM
To: Campbell, Patrick V
Subject: FW: Request for help from WV - Pyrmnesium parvum salinity requirements

straight from the researcher's keyboard...
From: Grover, James P [mailto:grover@uta.edu]
Sent: Wed 10/7/2009 4:18 PM
To: Wirts, John C
Cc: Brooks Bryan; Daniel Roelke
Subject: RE: Request for help from WV - Pyrmnesium parvum salinity requirements

John,

In partial answer to your question, I've attached two papers from our group.

Basically, in lab studies on P. parvum, we see slow growth at 0.1 to 0.2 per day, when salinity is 0.5 g / liter, and temperature is near 20 C. Growth is stronger (0.3 - 0.4 per day) for the same temperature when salinity is 1 g / liter. With higher salinities (2 - 4 g / liter), growth is strong (0.5 - 0.7 per day) for temperatures from 20 - 30 degrees. We haven't done experiments that used salinity levels more closely resolved than 0.5, 1, and 2 g / liter, and results at low salinity do depend on temperature. But the absolute limit for growth is probably about 0.5 g / liter, and more than than is probably needed for sufficient growth to produce a bloom.

Natural populations in competition with other algae probably need to grow at about 0.2 - 0.4 per day, and here in Texas we tend to see blooms if salinity is above about 1 - 1.5 g / liter as the population grows.

We have typically measured salinity in our work, rather than TDS. In many cases these quantities will be similar since a lot of the dissolved solids are ionic in most waters.

We have seen comparable growth in lab media with salt compositions based on seawater and in those with higher concentrations of divalent ions (Ca, Mg, HCO3, SO4) intended to mimic the inland waters of our region. But we haven't tried growing P. parvum in media with very low Na and Cl. Although we've never detected a statistically significant difference in growth based on ion composition, I still have the subjective impression that growth is a little better in media with proportionally more divalent cations than seawater. We and others have seen strong pH dependence in toxicity of P. parvum to fish (toxicity is higher for basic pH), and to the extent that waters rich in divalent cations tend to be alkaline this would be a concern. Ca concentration is also correlated to toxicity, since the hemolytic mechanism is driven by Ca fluxes. So I would be concerned with waters affected by discharges that elevated Ca concentrations.

I hope this information helps.

Jim

James P. Grover

Professor
Department of Biology
Program in Environmental and Earth Sciences
University of Texas at Arlington
Box 19498
Arlington TX 76019 USA
+817-272-2405 phone

+817-272-2855 fax
grover@uta.edu
http://www.uta.edu/biology/grover/index.htm

From: Wirts, John C [mailto:John.C.Wirts@wv.gov]
Sent: Tuesday, October 06, 2009 12:07 PM
To: tomasc@uncw.edu; Meridith.Byrd@tpwd.state.tx.us; Pat.Tester@noaa.gov; kiesling@usgs.gov; Grover, James P; mark.vanderborgh@ncmail.net; jennifer.wolny@myfwc.com; loraine.fries@tpwd.state.tx.us
Cc: Campbell, Patrick V
Subject: Request for help from WV - Pyrmnesium parvum salinity requirements

Dear Golden Algae experts,
I've talked with most of you in the last week or two about a major fish kill on Dunkard Creek which flows along the West Virginia / Pennsylvania border. We have confirmation of P. parvum at all impacted sites at concentrations between 100,000 and a million cell/mL. This kill has most of the characteristics of the golden algae kills we've read and heard about. Our fish health expert with USGS says the fish clearly show impacts of a toxin.

Perhaps unique to our fish kill, our salinity is primarily coming from permitted discharges. **Thus, we are very interested in knowing if you have opinions or know of research that would provide insight into what minimum level of Total Dissolved Solids is required to keep P. parvum alive and/or competitive with other algae.**

Similarly we wonder if some minimum amount of Sodium Chloride is required, or can this algae survive in a TDS comprised of 100% Calcium Sulfate. In our kill situation we have both NaCl and CaSO4, but we are fearful for other waters which have only CaSO4.

Any advice or insight would be most appreciated...

Thanks, John

John Wirts
WVDEP - DWWM
Watershed Assessment Section
601 57th St SE
Charleston, WV 25304
o (304) 926-0499 x 1060
c (304) 389-7625
john.c.wirts@wv.gov

FW: PFBC Sampling points

Arway, John o Louis Reynolds

10/08/2009 01:45 PM

><(*John* {(°>

-----Original Message-----
From: Brethauer, Charles
Sent: Friday, September 18, 2009 5:27 PM
To: Urban, Chris
Cc: Arway, John
Subject: RE: PFBC Sampling points

thanks for the maps. Is there some value in doing a station further downstream? The thinking is it would be further downstream of the negative influence of Shannopin, where there might be a healty fish population that is being whacked by the kill. I'm asking this without having looked at the results of station #9.

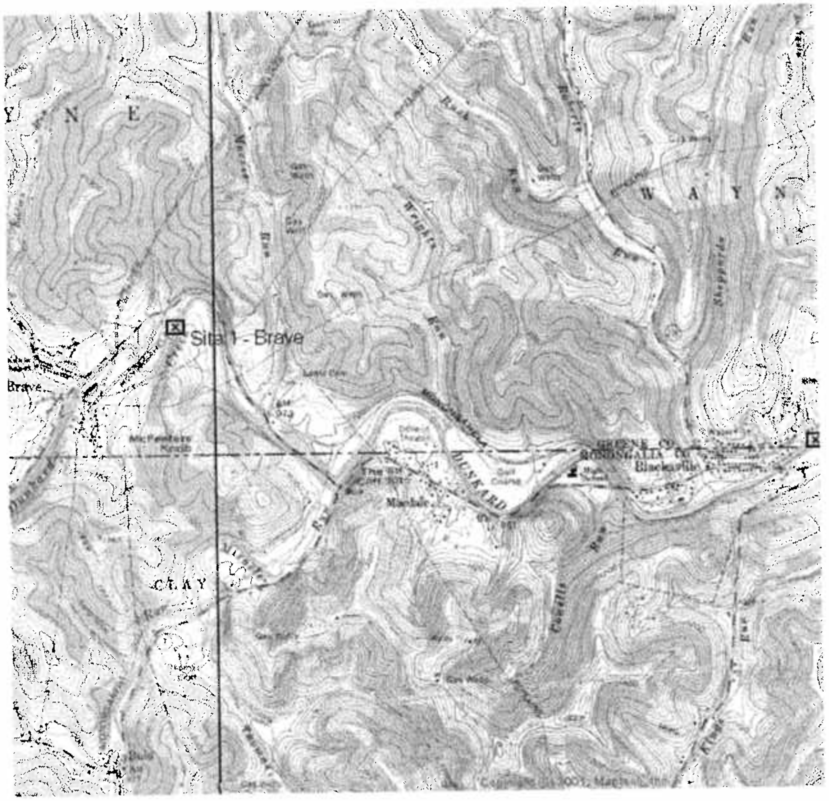
Charlie

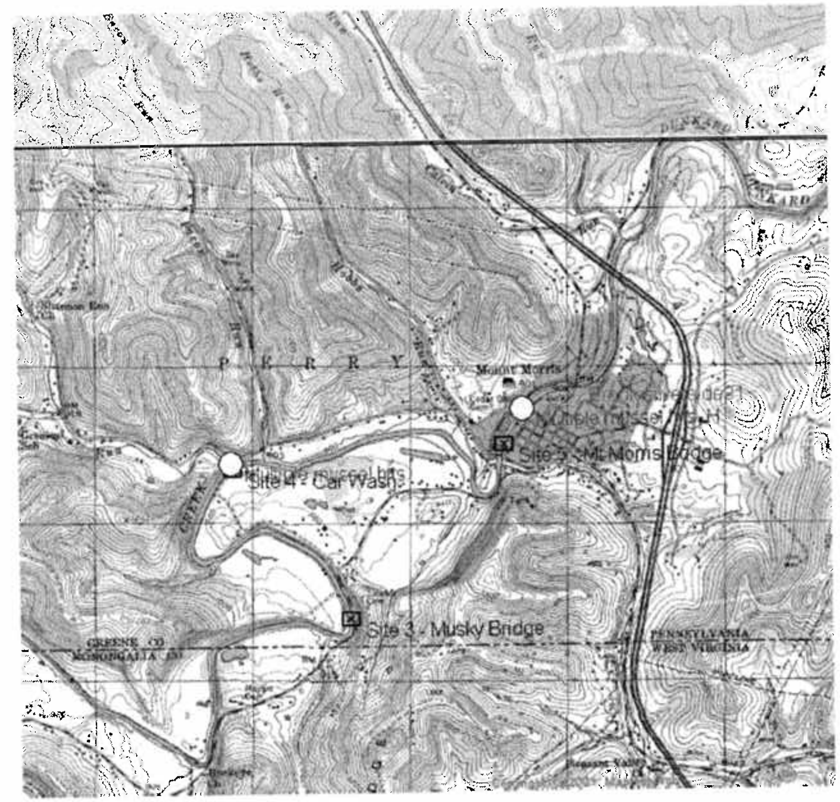
----Original Message-----
From: Urban, Chris
Sent: Friday, September 18, 2009 3:16 PM
To: Brethauer, Charles
Cc: Arway, John
Subject: PFBC Sampling points

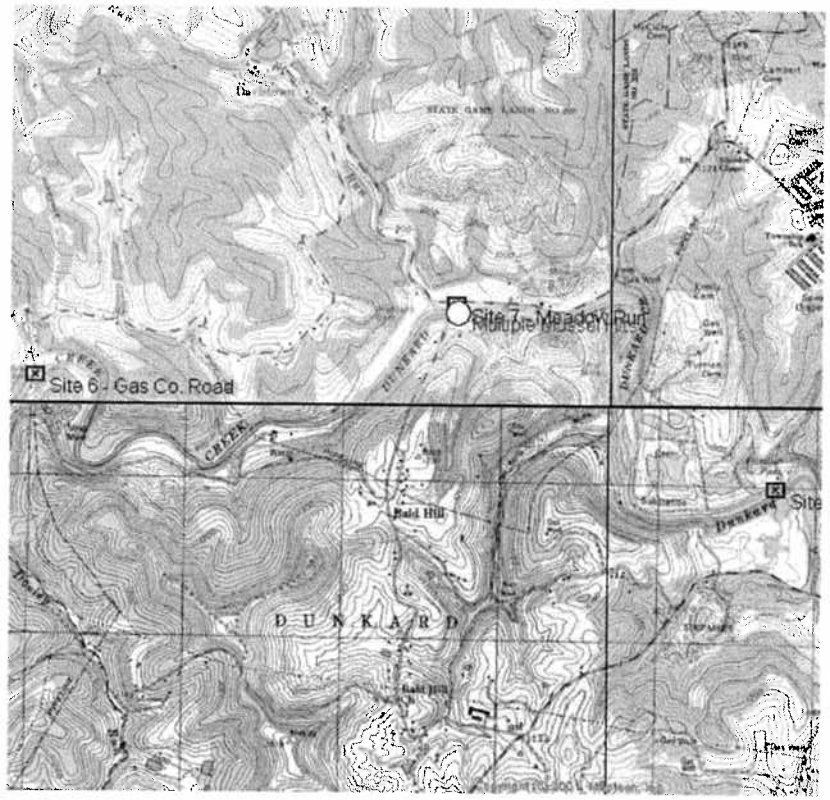
i Charlie,

Please see the maps below and table for our fish/mussel sampling points on Dunkard Creek, Greene Co.

Chris


Site 1 - Brave
Brave
DUNKARD
GREENE CO
MONONGALIA CO
Blacksville
CLAY
W A Y N


P E R R Y
Mount Morris
Site 4 - Car Wash
Site 5 - Mt. Morris Bridge
Site 3 - Musky Bridge
GREENE CO
MONONGALIA CO
PENNSYLVANIA
WEST VIRGINIA
DUNKARD



Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds

10/08/2009 06:54 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571

304-825-6787 Dunkard kill timeline10-8_09(1).xls

Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds

10/08/2009 06:54 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571

304-825-6787 Dunkard kill2 timeline10-8_09(1).xls

Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds

10/08/2009 06:56 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571

304-825-6787 Dunkard kill2 timeline10-8_09(1).xls

Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds — 10/08/2009 06:59 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571
304-825-6787

Dunkard kill2 timeline10-8_09(1).xls

Dunkard Creek Discussion

Miller, Harold to Louis Reynolds — 10/09/2009 12:00 PM

History: This message has been replied to.

Lou,

Charley Brethauer advised me of a meeting scheduled for next Tuesday (10/13/09) to discuss observations and findings concerning the Dunkard Creek fish kill. I wouldn't mind attending, if that is OK. Is the meeting still on and will it take place at the Wheeling EPA office?

Harold Miller, P.G. | Professional Geologist Mgr
Department of Environmental Protection
Bureau of Mining and Reclamation
Rachel Carson State Office Building
400 Market Street | Harrisburg, PA 17101
Phone: 717.787.3174 | Fax: 717.783.4675
www.depweb.state.pa.us

Re: Dunkard Creek Discussion

Louis Reynolds to: Miller, Harold — 10/09/2009 04:34 PM

Yes to all. The meeting starts at 10 am on Tuesday (10/13). The directions are attached.

directions_r3whl.pdf

See you next week,

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Miller, Harold" Lou, Charley Brethauer advised me of a meeting... 10/09/2009 12:00:43 PM

From: "Miller, Harold" <harmiller@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/09/2009 12:00 PM
Subject: Dunkard Creek Discussion

Lou,

Charley Brethauer advised me of a meeting scheduled for next Tuesday (10/13/09) to discuss observations and findings concerning the Dunkard Creek fish kill. I wouldn't mind attending, if that is OK. Is the meeting still on and will it take place at the Wheeling EPA office?

Harold Miller, P.G. | Professional Geologist Mgr
Department of Environmental Protection
Bureau of Mining and Reclamation
Rachel Carson State Office Building
400 Market Street | Harrisburg, PA 17101
Phone: 717.787.3174 | Fax: 717.783.4675
www.depweb.state.pa.us

Update map of Dunkard Ck watershed

Miller, Harold to: Brethauer, Charles, Dillemuth, Brian, Louis Reynolds — 10/14/2009 09:13 AM

Gentlemen,

Attached is an updated map of the Dunkard Creek watershed, which was prepared by our California District Mining Office. As follow up to concerns about increased gas well drilling raised at the Oct 2 meeting in Pittsburgh, I had California staff add a layer showing active gas wells in the watershed. The layer distinguishes wells by type (standard oil & gas, Marcellus and coal bed methane) based on information maintained by the Bureau of Oil & Gas Management. I also asked them to highlight wells drilled since January 1, 2009, to emphasize recent drilling activity. (Note that a significant number of active wells do not show up on the map because their records were missing latitude/longitude coordinates)

The California office also added other relevant reference points to the map, including fish kill locations, mine water transfer stations, monitoring boreholes, USGS stream gage, and various landmarks.

Harold Miller, P.G. | Professional Geologist Mgr
Department of Environmental Protection
Bureau of Mining and Reclamation
Rachel Carson State Office Building
400 Market Street | Harrisburg, PA 17101
Phone: 717.787.3174 | Fax: 717.783.4675
www.depweb.state.pa.us

[attachment "Pgh_Sew_Interact_Rev_4_Distilled.pdf" deleted by Louis Reynolds/R3/USEPA/US]

FW: Dunkard Creek

Folman, Joel to Louis Reynolds

10/14/2009 09:42 AM

FYI....Joel

-----Original Message-----
From: Prentice, Gregory
Sent: Wednesday, October 14, 2009 8:41 AM
To: Leitkam, Stephen; Folman, Joel
Subject: FW: Dunkard Creek

FYI

-----Original Message-----
From: Prentice, Gregory
Sent: Wednesday, October 14, 2009 8:11 AM
To: Miller, Harold; Koricich, Joel; Plassio, William; Leone, Joseph
Subject: Dunkard Creek

Observer-Reporter article:

[attachment "DEP asks EPA to revoke license.doc" deleted by Louis Reynolds/R3/USEPA/US]

Consol report on Dunkard Cr

Folman, Joel to Louis Reynolds

10/14/2009 09:47 AM

FYI.....Joel

Subject: Consol report on Dunkard Cr

[attachment "Consol Survey 09212009.pdf" deleted by Louis Reynolds/R3/USEPA/US]

Emailing: 1005306-113

Folman, Joel to Louis Reynolds

10/14/2009 10:11 AM

The message is ready to be sent with the following file or link attachments :

Shortcut to: http://www.post-gazette.com/pg/09287/1005306-113.stm

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

********** ATTACHMENT NOT DELIVERED **********

This Email message contained an attachment named
1005306-113.url
which may be a computer program. This attached computer program could contain a computer virus which could cause harm to EPA 's computers, network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********** ATTACHMENT NOT DELIVERED **********

Dunkard Creek info

Folman, Joel to David Argent (argent@calu.edu)

10/14/2009 10:54 AM

Cc: Louis Reynolds

Dave,

Got this information on Dunkard Creek yesterday at a EPA meeting in Wheeling over the fish kill. I thought you would be interested in some of this information. According to a Professor from Oklahoma that was on a teleconference call with us, once this Golden Algae is here you can't get rid of it....which isn't a good thing. The contact person for EPA in Wheeling if your interested is Lou Reynolds 304-234-0244. They are looking for any and all information on Dunkard Creek, fish, benthic, chemical, etc prior to the fish kill. If you have anything on this stream from your or a students past studies I would think they would really like to get it for their time lines and base information.

Joel

Subject: Dunkard Creek info

Attached is some information that Patrick Campbell (WV DEP) sent. .
[attachment "dunkardaqlkillpvc.pdf" deleted by Louis Reynolds/R3/USEPA/US]

Augmentation Water
t
Folman, Joel o Louis Reynolds 10/15/2009 08:38 AM
:

History: This message has been replied to.

Good Morning Lou,

Hope you didn't mind my sending Dr. Argent that email yesterday that I cc'ed you on. I figured that he or Kimmel may have background information on Dunkard Crk that may have been useful for your investigation, now as to my new email. I talked to our Subsidence Inspector for Blacksville #2 to determine were augmentation was going on in the Dunkard Crk watershed at the time of the kill. According to Joe Laslo, Consol was augmenting 3 streams Blockhouse Run in the area of the 16W panel and tributary to Blockhouse Run 41824. These two stream were being augmented from mid-July to Sept 15th, when dead fish were noted and the haulers were told to use another location to obtain water. The other stream is tributary to Tom Run 41833 located in the 21M panel. Augmentation began on Sept 1 and ended on Sept. 15th. All augmentation water was taken from the Brave pool. All streams are located in Jackson Twp. Greene Co. for your information. According to Mr. Laslo, Consol is now getting their augmentation water from a farm pond located at N 80.326 W 39.786 on Jones Road and also downstream on Blockhouse Run and Toms Run located in Jackson Twp. Greene Co.

A thought came to me that didn't sit well and that maybe know one thought off. I'm sure that these water haulers are not just using their trucks for just hauling augmentation water. Unless they clean their tanks and disinfected them, couldn't this algae be transported to other watersheds or for that matter into private water supplies? Just some food for thought…

Have a great day……..

Joel

---------- ><(((*> ----------

***Joel C. Folman** / Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Re: Augmentation Water
t
Louis Reynolds o Folman, Joel 10/15/2009 01:33 PM
:

Joel,

No worries about sending stuff to Argent. I was talking to him too.

I have the same concerns regarding transfer of the algae. We need to know where those trucks have gone OUT OF BASIN. I am concerned with that private pond - we need to take a sample there.

I assume these waste haulers do not also transport potable water. If they do, that's just crazy.

Is there any way to track who went where with these damned waste haulers?

And now a question for you...

If CONSOL was taking water out of the stream upstream of their discharge (which they were) were they then discharging that same water after it ran through their prep plant? I am assuming that they are using this water for cooling of machinery? If they are then putting that same water back in the stream at the outfall 005, then they really aren't losing any dilution, right?

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Folman, Joel" Good Morning Lou, Hope you didn't mind my se... 10/15/2009 08:38:16 AM

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 08:38 AM
Subject: Augmentation Water

Good Morning Lou,

Hope you didn't mind my sending Dr. Argent that email yesterday that I cc'ed you on. I figured that he or Kimmel may have background information on Dunkard Crk that may have been useful for your investigation, now as to my new email. I talked to our Subsidence Inspector for Blacksville #2 to determine were augmentation was going on in the Dunkard Crk watershed at the time of the kill. According to Joe Laslo, Consol was augmenting 3 streams Blockhouse Run in the area of the 16W panel and tributary to Blockhouse Run 41824. These two stream were being augmented from mid-July to Sept 15th, when dead fish were noted and the haulers were told to use another location to obtain water. The other stream is tributary to Tom Run 41833 located in the 21M panel. Augmentation

began on Sept 1 and ended on Sept. 15th. All augmentation water was taken from the Brave pool All streams are located in Jackson Twp. Greene Co. for your information. According to Mr. Laslo, Consol is now getting their augmentation water from a farm pond located at N 80.326 W 39.786 on Jones Road and also downstream on Blockhouse Run and Toms Run located in Jackson Twp. Greene Co.

A thought came to me that didn't sit well and that maybe know one thought off. I'm sure that these water haulers are not just using their trucks for just hauling augmentation water. Unless they clean their tanks and disinfected them, couldn't this algae be transported to other watersheds or for that matter into private water supplies? Just some food for thought…

Have a great day……..

Joel

---------- ><(((*> ----------

Joel C. Folman / *Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

RE: Augmentation Water

Folman, Joel to Louis Reynolds 10/15/2009 02:10 PM

History: This message has been replied to.

Lou,

As for the tracking of trucks in and out of the basin, that's a good question. I would think that either water quality or the oil and gas folks may be looking at the haulers. To be honest I really don't know. I posed that question to you because it came to me that if these trucks are used say one day at Blacksville and the next at Enlow we could get the algae in a lot of different locations. So who would regulate this activity? It was something that wasn't brought up in the meeting so I figured that I would pass my thought onto a wiser man than myself.

As for the Consol question, typically when water is pumped out of a stream and used in the process water, this water is used for a variety of items. From the actually processing of the coal to the sprays for dust suppression to the cooling of the equipment. All water used will eventually go through the various treatment facilities before discharging back into the water system. So as to your question I don't believe they are losing any dilution. On the other hand, water pumped out of the stream my have lower concentrations of some metals than are discharged back into the system as long as they meet their NPDES permit requirements. Just some food for thought.

Now for something else....I was talking to Vince Yantko that helped me do the Dunkard Crk Watershed study back in the 90's. The man is a bigger pack rat than myself. He had our field lab book with all our field notes and sample numbers. I made a copy for my favorite EPA biologist, so when I come to your office I will bring that information with me.

Joel

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 15, 2009 1:33 PM
To: Folman, Joel
Subject: Re: Augmentation Water

Joel,

No worries about sending stuff to Argent. I was talking to him too.

I have the same concerns regarding transfer of the algae. We need to know where those trucks have gone OUT OF BASIN. I am concerned with that private pond - we need to take a sample there.

I assume these waste haulers do not also transport potable water. If they do, that's just crazy.

Is there any way to track who went where with these damned waste haulers?

And now a question for you...

If CONSOL was taking water out of the stream upstream of their discharge (which they were) were they then discharging that same water after it ran through their prep plant? I am assuming that they are using this water for cooling of machinery? If they are then putting that same water back in the stream at the outfall 005, then they really aren't losing any dilution, right?

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 08:38 AM
Subject: Augmentation Water

Good Morning Lou,

Hope you didn't mind my sending Dr. Argent that email yesterday that I cc'ed you on. I figured that he or Kimmel may have background information on Dunkard Crk that may have been useful for your investigation, now as to my new email. I talked to our Subsidence Inspector for Blacksville #2 to determine were augmentation was going on in the Dunkard Crk watershed at the time of the kill. According to Joe Laslo, Consol was augmenting 3 streams Blockhouse Run in the area of the 16W panel and tributary to Blockhouse Run 41824. These two stream were being augmented from mid-July to Sept 15th, when dead fish were noted and the haulers were told to use another location to obtain water. The other stream is tributary to Tom Run 41833 located in the 21M panel. Augmentation began on Sept 1 and ended on Sept. 15th. All augmentation water was taken from the Brave pool. All streams are located in Jackson Twp. Greene Co. for your information. According to Mr. Laslo, Consol is now getting their augmentation water from a farm pond located at N 80.326 W 39.786 on Jones Road and also downstream on Blockhouse Run and Toms Run located in Jackson Twp. Greene Co.

A thought came to me that didn't sit well and that maybe know one thought off. I'm sure that these water haulers are not just using their trucks for just hauling augmentation water. Unless they clean their tanks and disinfected them, couldn't this algae be transported to other watersheds or for that matter into private water supplies? Just some food for thought…

Have a great day……..

Joel

---------- ><(((*> ----------

***Joel C. Folman** / Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

RE: Augmentation Water

Louis Reynolds to Folman, Joel 10/15/2009 02:57 PM

Thanks, Joel.

For the next three weeks, my schedule is as follows

next week in on M and T morning. Back in on Th.
week after (last week of Oct) Out till Thursday
First week of Nov - In on Monday

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Folman, Joel" Lou, As for the tracking of trucks in and out of th... 10/15/2009 02:10:02 PM

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 02:10 PM
Subject: RE: Augmentation Water

Lou,

As for the tracking of trucks in and out of the basin, that's a good question. I would think that either water quality or the oil and gas folks may be looking at the haulers. To be honest I really don't know. I posed that question to you because it came to me that if these trucks are used say one day at Blacksville and the next at Enlow we could get the algae in a lot of different locations. So who would regulate this activity? It was something that wasn't brought up in the meeting so I figured that I would pass my thought onto a wiser man than myself.

As for the Consol question, typically when water is pumped out of a stream and used in the process water, this water is used for a variety of items. From the actually processing of the coal to the sprays for dust suppression to the cooling of the equipment. All water used will eventually go through the various treatment facilities before discharging back into the water system. So as to your question I don't believe they are losing any dilution. On the other hand, water pumped out of the stream my have lower concentrations of some metals than are discharged back into the system as long as they meet their NPDES permit requirements. Just some food for thought.

Now for something else....I was talking to Vince Yantko that helped me do the Dunkard Crk Watershed study back in the 90's. The man is a bigger pack rat than myself. He had our field lab book with all our field notes and sample numbers. I made a copy for my favorite EPA biologist, so when I come to your office I will bring that information with me.

Joel

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 15, 2009 1:33 PM
To: Folman, Joel
Subject: Re: Augmentation Water

Joel,

No worries about sending stuff to Argent. I was talking to him too.

I have the same concerns regarding transfer of the algae. We need to know where those trucks have gone OUT OF BASIN. I am concerned with that private pond - we need to take a sample there.

I assume these waste haulers do not also transport potable water. If they do, that's just crazy.

Is there any way to track who went where with these damned waste haulers?

And now a question for you...

If CONSOL was taking water out of the stream upstream of their discharge (which they were) were they then discharging that same water after it ran through their prep plant? I am assuming that they are using this water for cooling of machinery? If they are then putting that same water back in the stream at the outfall 005, then they really aren't losing any dilution, right?

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 08:38 AM
Augmentation Water

Subject:

Good Morning Lou,

Hope you didn't mind my sending Dr. Argent that email yesterday that I cc'ed you on. I figured that he or Kimmel may have background information on Dunkard Crk that may have been useful for your investigation, now as to my new email. I talked to our Subsidence Inspector for Blacksville #2 to determine were augmentation was going on in the Dunkard Crk watershed at the time of the kill. According to Joe Laslo, Consol was augmenting 3 streams Blockhouse Run in the area of the 16W panel and tributary to Blockhouse Run 41824. These two stream were being augmented from mid-July to Sept 15th, when dead fish were noted and the haulers were told to use another location to obtain water. The other stream is tributary to Tom Run 41833 located in the 21M panel. Augmentation began on Sept 1 and ended on Sept. 15th. All augmentation water was taken from the Brave pool. All streams are located in Jackson Twp. Greene Co. for your information. According to Mr. Laslo, Consol is now getting their augmentation water from a farm pond located at N 80.326 W 39.786 on Jones Road and also downstream on Blockhouse Run and Toms Run located in Jackson Twp. Greene Co.

A thought came to me that didn't sit well and that maybe know one thought off. I'm sure that these water haulers are not just using their trucks for just hauling augmentation water. Unless they clean their tanks and disinfected them, couldn't this algae be transported to other watersheds or for that matter into private water supplies? Just some food for thought…

Have a great day……..

Joel

---------- ><(((*> ----------

Joel C. Folman / *Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Dunkard PA data

Louis Reynolds to frankjernejcic

10/15/2009 03:16 PM

DunkardCreek_Lou.xls

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

RE: Dunkard Benthics

Wirts, John C to Greg Pond

10/16/2009 10:59 AM

Cc: Louis Reynolds, Margaret Passmore

My bad – I'm trying to get out of here early and in too much of a hurry...

From: Pond.Greg@epamail.epa.gov [mailto:Pond.Greg@epamail.epa.gov]
Sent: Friday, October 16, 2009 10:54 AM
To: Wirts, John C
Cc: Reynolds.Louis@epamail.epa.gov; Passmore.Margaret@epamail.epa.gov
Subject: Re: Dunkard Benthics

Hey John, the attachment was not sent. Could you re-send? Thanks!

Greg Pond
Office of Monitoring and Assessment
U.S. EPA Region 3
1060 Chapline Street, Suite 303
Wheeling, WV 26003-2995
(p) 304-234-0243
(f) 304-234-0260
pond.greg@epa.gov
Visit our website at http://epa.gov/reg3esd1/3ea50.htm

From: "Wirts, John C" <John.C.Wirts@wv.gov>
To: Louis Reynolds/R3/USEPA/US@EPA, Margaret Passmore/R3/USEPA/US@EPA, Greg Pond/R3/USEPA/US@EPA
Date: 10/16/2009 10:52 AM
Subject: Dunkard Benthics

Lou, Maggie, and Greg
Here's some benthic data from Dunkard (including WV Fork and South Fk / WV Fk) – including recent data.
I'll send our recent WQ data as well.
Lou – we didn't collect as much lab data as I originally thought – I think just one site near Wana . The rest of the data we collected were just field parms. I'll get it all to you early next week
John
[attachment "Dunkard bugs.xlsx" deleted by Louis Reynolds/R3/USEPA/US]

Dunkard Creek

Milavec, Pamela to Kime, Rodney, Chalfant, Brian, Botts, William, 'Reynolds.Louis@epamail.epa.gov'

10/16/2009 11:35 AM

Cc: "Spyker, Kay"

In follow-up to Brian's email message and power point , attached is my report from BAMR's Oct., 2008 sampling.
Pam

Pamela J. Milavec | Chief
Environmental Services Section
Department of Environmental Protection
Bureau of Abandoned Mine Reclamation
Cambria District Office
286 Industrial Park Road | Ebensburg, PA 15931-4119
Phone: 814.472.1800 | Fax: 814.472.1839
www.depweb.state.pa.us

[attachment "Dunkard Creek Biological Survey .doc" deleted by Louis Reynolds/R3/USEPA/US]

FW: Golden Brown Algae

Folman, Joel to Louis Reynolds

10/19/2009 01:13 PM

Lou,

Would you have any suggestions as to the implementation of decontamination procedure.....

Joel

-----Original Message-----
From: Matt Wachob [mailto:MWachob@wallacepancher.com]
Sent: Monday, October 19, 2009 12:29 PM
To: Folman, Joel
Cc: John Burglund
Subject: Golden Brown Algae

Joel

We have become aware that the DEP is recommending that anyone who comes in contact with surface waters should implement a decontamination procedure to prevent the spread of Golden Brown Algae from one watershed to another. Are you aware of any procedures recommended by the DEP to decontaminate equipment and apparel between sites?

Thanks

Matt

WPI
WALLACE & PANCHER, INC.
ENGINEERING & ENVIRONMENTAL

Matt Wachob
Field Data Manager
Wallace & Pancher, Inc.
Waynesburg Field Office
365 Jefferson Road
Waynesburg, PA 15370
724.981.0155 Phone
724.627.7460 Fax
724.699.9386 Mobile
mwachob@wallacepancher.com image001.jpg

Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds

10/20/2009 03:48 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571

304-825-6787 Dunkard kill2 timeline10-8_09(1).xls

Dunkard Fish Kill Time Line

Frank Jernejcic to Louis Reynolds

10/20/2009 03:55 PM

Cc: "Dave Wellman ", "Bret Preston"

Lou: I saw about 30 distressed carp at Mt. Morris today and a 36" dead musky, probably less than a week old. Only some live minnows at mouth of Rudolph Run and no minnows or carp at Miracle Run where they have been since the start of the kill until last Thursday. No live or dead fish anywhere else in between nor upstream at Wana. Frank.

Frank Jernejcic
District Fishery Biologist
WV DNR
PO Box 99
1110 Railroad Street
Farmington, WV 26571

304-825-6787 Dunkard kill2 timeline10-8_09(1).xls

RE: Augmentation Water

Folman, Joel to Louis Reynolds 10/21/2009 09:25 AM

Lou,

Got the information on Dunkard yesterday will try to get that information up to you the first week of November. At the moment I have a meeting with Argent on the 2nd which is Monday. What day would be good to bring up everything the week of Nov 2nd??? Oh and did you think about the decontamination procedure question that was presented in that email I forwarded on to you.

Joel
-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 15, 2009 2:57 PM
To: Folman, Joel
Subject: RE: Augmentation Water

Thanks, Joel.

For the next three weeks, my schedule is as follows

next week in on M and T morning. Back in on Th.
week after (last week of Oct) Out till Thursday
First week of Nov - In on Monday

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 02:10 PM
Subject: RE: Augmentation Water

Lou,

As for the tracking of trucks in and out of the basin, that's a good question. I would think that either water quality or the oil and gas folks may be looking at the haulers. To be honest I really don't know. I posed that question to you because it came to me that if these trucks are used say one day at Blacksville and the next at Enlow we could get the algae in a lot of different locations. So who would regulate this activity? It was something that wasn't brought up in the meeting so I figured that I would pass my thought onto a wiser man than myself.

As for the Consol question, typically when water is pumped out of a stream and used in the process water, this water is used for a variety of items. From the actually processing of the coal to the sprays for dust suppression to the cooling of the equipment. All water used will eventually go through the various treatment facilities before discharging back into the water system. So as to your question I don't believe they are losing any dilution. On the other hand, water pumped out of the stream my have lower concentrations of some metals than are discharged back into the system as long as they meet their NPDES permit requirements. Just some food for thought.

Now for something else....I was talking to Vince Yantko that helped me do the Dunkard Crk Watershed study back in the 90's. The man is a bigger pack rat than myself. He had our field lab book with all our field notes and sample numbers. I made a copy for my favorite EPA biologist, so when I come to your office I will bring that information with me.

Joel
-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Thursday, October 15, 2009 1:33 PM
To: Folman, Joel
Subject: Re: Augmentation Water

Joel,

No worries about sending stuff to Argent. I was talking to him too.

I have the same concerns regarding transfer of the algae. We need to know where those trucks have gone OUT OF BASIN. I am concerned with that private pond - we need to take a sample there.

I assume these waste haulers do not also transport potable water. If they do, that's just crazy.

Is there any way to track who went where with these damned waste haulers?

And now a question for you...

If CONSOL was taking water out of the stream upstream of their discharge (which they were) were they then discharging that same water after it ran through their prep plant? I am assuming that they are using this water for cooling of machinery? If they are then putting that same water back in the stream at the outfall 005, then they really aren't losing any dilution, right?

lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/15/2009 08:38 AM
Subject: Augmentation Water

Good Morning Lou,

Hope you didn't mind my sending Dr. Argent that email yesterday that I cc'ed you on. I figured that he or Kimmel may have background information on Dunkard Crk that may have been useful for your investigation, now as to my new email. I talked to our Subsidence Inspector for Blackstille #2 to determine were augmentation was going on in the Dunkard Crk watershed at the time of the kill. According to Joe Laslo, Consol was augmenting 3 streams Blockhouse Run in the area of the 16W panel and tributary to Blockhouse Run 41824. These two stream were being augmented from mid-July to Sept 15th, when dead fish were noted and the haulers were told to use another location to obtain water. The other stream is tributary to Tom Run 41833 located in the 21M panel. Augmentation began on Sept 1 and ended on Sept. 15th. All augmentation water was taken from the Brave pool. All streams are located in Jackson Twp. Greene Co. for your information. According to Mr. Laslo, Consol is now getting their augmentation water from a farm pond located at N80.326 W 39.786 on Jones Road and also downstream on Blockhouse Run and Toms Run located in Jackson Twp. Greene Co.

A thought came to me that didn't sit well and that maybe know one thought off. I'm sure that these water haulers are not just using their trucks for just hauling augmentation water. Unless they clean their tanks and disinfected them, couldn't this algae be transported to other watersheds or for that matter into private water supplies? Just some food for thought…

Have a great day……..

Joel

---------- ><(((*> ----------

Joel C. Folman / *Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Emailing: item

Folman, Joel to David Argent (argent@calu.edu) 10/21/2009 01:57 PM

Cc: "Kenderes, Gary", Louis Reynolds, "Mark Haibach (mhaibach@cecinc.com)"

Dave,

Came across this information and thought that it maybe useful to a person of your stature. Lot of good information that WVDEP put together on the Golden Algae issue. Most of the short cuts come from information that Texas has put together.

Joel

The message is ready to be sent with the following file or link attachments :

Shortcut to: http://www.wvdep.org/item.cfm?ssid=11&sslid=987

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

********** ATTACHMENT NOT DELIVERED **********

This Email message contained an attachment named
item.url
which may be a computer program. This attached computer program could contain a computer virus which could cause harm to EPA 's computers, network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********** ATTACHMENT NOT DELIVERED **********

water testing results

Folman, Joel to Louis Reynolds 10/26/2009 08:36 AM

History: This message has been replied to.

Subject: water testing results

Lou,

I'm trying to pull in some information from other sources for your time line. Hope this information is helpful. In addition, I have the Pa and WV water samples for the Rivers Conservation Plan for the Dunkard Creek Watershed that I told you about at the meeting. I will try to get that information up to you next week.

Below is the data from Betty Wiley on Dunkard Creek.

Joel

---------- ><(((*> ----------

Joel C. Folman */ Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Sent: Monday, October 26, 2009 1:51 AM
Subject: water testing results

Attached pdf is water testing results from 2001-2. Paul Baker donated this work to the Dunkard Creek Watershed Assn. It provides a database of important information. Note the conductivity from beginning to end, how it increased.

Microsoft Word - Dunkard water tests 2001-2.pdf

Re: water testing results

Louis Reynolds to Folman, Joel 10/26/2009 08:37 AM

Thanks, Joel. That'll be helpful.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

"Folman, Joel" Subject: water testing results Lou , 10/26/2009 08:36:36 AM

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/26/2009 08:36 AM
Subject: water testing results

Subject: water testing results

Lou ,

I'm trying to pull in some information from other sources for your time line. Hope this information is helpful. In addition, I have the Pa and WV water samples for the Rivers Conservation Plan for the Dunkard Creek Watershed that I told you about at the meeting. I will try to get that information up to you next week.

Below is the data from Betty Wiley on Dunkard Creek.

Joel

---------- ><(((*> ----------

Joel C. Folman / *Water Pollution Biologist*

California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Sent: Monday, October 26, 2009 1:51 AM
Subject: water testing results

Attached pdf is water testing results from 2001-2. Paul Baker donated this work to the Dunkard Creek Watershed Assn. It provides a database of important information. Note the conductivity from beginning to end, how it increased.

[attachment "Microsoft Word - Dunkard water tests 2001-2.pdf" deleted by Louis Reynolds/R3/USEPA/US]

RE: water testing results

Folman, Joel to Louis Reynolds 10/26/2009 08:44 AM

Are you going to the Invasive Species Exercise at State College this week, was just wondering. So are you going to be in the office next Monday Nov. 2nd. If you will be I will bring the information to your office that day. You can also photocopy the Rivers Conservation Plan book if you would like at that time.

Joel

-----Original Message-----
From: Reynolds.Louis@epamail.epa.gov [mailto:Reynolds.Louis@epamail.epa.gov]
Sent: Monday, October 26, 2009 8:38 AM
To: Folman, Joel
Subject: Re: water testing results

Thanks, Joel. That'll be helpful.

Lou

Lou Reynolds
USEPA Region III
Freshwater Biology Team
1060 Chapline St. Ste. 303
Wheeling, WV 26003-2995
P 304-234-0244
F 304-234-0260

From: "Folman, Joel" <jfolman@state.pa.us>
To: Louis Reynolds/R3/USEPA/US@EPA
Date: 10/26/2009 08:36 AM
Subject: water testing results

Subject: water testing results

Lou ,

I'm trying to pull in some information from other sources for your time line. Hope this information is helpful. In addition, I have the Pa and WV water samples for the Rivers Conservation Plan for the Dunkard Creek Watershed that I told you about at the meeting. I will try to get that information up to you next week.

Below is the data from Betty Wiley on Dunkard Creek.

Joel

---------- ><(((*> ----------

Joel C. Folman / *Water Pollution Biologist*
California District Office
25 Technology Drive
California Technology Park
Coal Center, Pa. 15423
Office: 724-769-1090
Fax: 724-769-1102
jfolman@state.pa.us
www.depweb.state.pa.us

Sent: Monday, October 26, 2009 1:51 AM
Subject: water testing results

Attached pdf is water testing results from 2001-2. Paul Baker donated this work to the Dunkard Creek Watershed Assn. It provides a database of important information. Note the conductivity from beginning to end, how it increased.

[attachment "Microsoft Word - Dunkard water tests 2001-2.pdf" deleted by Louis Reynolds/R3/USEPA/US]

Fw: FOIA 03-FOIA-00077-10 forthcoming - Assigned to 3WP40 and 3WP20

Chad Harsh to: Jon Capacasa, John Armstead, David McGuigan, Angela McFadden, Evelyn MacKnight, Victoria Binetti, John Forren, Louis Reynolds, Frank Borsuk, Amy Bergdale, Judith Hykel, Nina Rivera — 10/26/2009 12:51 PM

History: This message has been replied to.

FYI. You or someone in your office may have responsive documents. I assume that someone from ORC will need to review our documents to determine what is releasable.

Chad
----- Forwarded by Chad Harsh/R3/USEPA/US on 10/26/2009 12:46 PM -----

From: Josephine Watson/R3/USEPA/US
To: Becky Blazek/R3/USEPA/US@EPA, Steve Platt/R3/USEPA/US@EPA, Susan Mulcahy/R3/USEPA/US@EPA, Chad Harsh/R3/USEPA/US@EPA
Cc: Richard Vanholt/R3/USEPA/US
Date: 10/26/2009 12:14 PM
Subject: FOIA 03-FOIA-00077-10 forthcoming - Assigned to 3WP40 and 3WP20

03-FOIA-00077-10 Due 11/19
From Margaret Janes
Appalachian Ctr for the Economy & the Environment
Subject All communications between EPA and state agencies or other officials of PA and WV related to fish kill in Dunkdard
Creek of the Monongahela River

Assigned to 3WP20 (Steve Platt) and 3WP40 (Chad Harsh)

Good afternoon Sue et al

The above FOIA is assigned to both 3WP40 and 3WP20. Please coordinate response. Also --A FEE WAIVER HAS BEEN GRANTED for
this FOIA. Please confirm that above staff will handle FOIA, if not, provide appropriate staff's name.
Thanks.

Josephine Watson
Water Protection Division
Program Support Office (3WP60)
(215) 814-5708